Najdete lokalni extremy a sedlove body funkce -8+8*x^2+17*y^2+7*x^3-9*y^3

funkce, $-8 + 8\,x^2 + 17\,y^2 + 7\,x^3 - 9\,y^3$, *má gradient*, $\begin{bmatrix} 16\,x + 21\,x^2 \\ 34\,y - 27\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\, [x = 0, y = 0], \left[x = 0, y = \frac{34}{27} \right], \left[x = \frac{-16}{21}, y = 0 \right], \left[x = \frac{-16}{21}, y = \frac{34}{27} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \to 16\,u^2 + 34\,v^2 = 16\,u^2 + 34\,v^2$$

v bode, $\left[x = 0, y = \frac{34}{27} \right]$, *je druhy diferencial*,

$$(u, v) \to 16\,u^2 - 34\,v^2 = 16\,u^2 - 34\,v^2$$

v bode, $\left[x = \frac{-16}{21}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \to -16\,u^2 + 34\,v^2 = -16\,u^2 + 34\,v^2$$

v bode, $\left[x = \frac{-16}{21}, y = \frac{34}{27} \right]$, *je druhy diferencial*,

$$(u, v) \to -16\,u^2 - 34\,v^2 = -16\,u^2 - 34\,v^2$$

$LocalMin = [\,[\,0,\,0\,]\,]$, $LocalMax = \left[\left[\frac{-16}{21}, \frac{34}{27} \right] \right]$,

$$Saddle = \left[\left[0, \frac{34}{27} \right], \left[\frac{-16}{21}, 0 \right] \right]$$

line := "PMMAT2| 99521|Albrechtová, Kristýna|zk|ESF B-HPS NH [sem 6]"

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+2*y^2+x^3+15*y^3

funkce, $-9 + 3\,x^2 + 2\,y^2 + x^3 + 15\,y^3$, *má gradient*, $\begin{bmatrix} 6\,x + 3\,x^2 \\ 4\,y + 45\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\, [x = 0, y = 0], \left[x = 0, y = \frac{-4}{45} \right], [x = -2, y = 0], \left[x = -2, y = \frac{-4}{45} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \to 6\,u^2 + 4\,v^2 = 6\,u^2 + 4\,v^2$$

v bode, $\left[x = 0, y = \frac{-4}{45} \right]$, *je druhy diferencial*,

$$(u, v) \to 6\,u^2 - 4\,v^2 = 6\,u^2 - 4\,v^2$$

v bode, $[x = -2, y = 0]$, *je druhy diferencial*,

$$(u, v) \to -6\,u^2 + 4\,v^2 = -6\,u^2 + 4\,v^2$$

$v \; bode, \left[x = \text{-}2, y = \dfrac{\text{-}4}{45} \right], je \; druhy \; diferencial,$

$$(u, v) \rightarrow -6\,u^2 - 4\,v^2 = -6\,u^2 - 4\,v^2$$

$LocalMin = [\,[\,0, 0\,]\,], LocalMax = \left[\left[\text{-}2, \dfrac{\text{-}4}{45} \right]\right], Saddle = \left[\left[0, \dfrac{\text{-}4}{45} \right], [\text{-}2, 0] \right]$

$line := \text{"PMMAT2|100108|Babák, Jan} \qquad \text{|zk|ESF M-HPS RRS [sem 6]"}$

$$zadani \; pro, \text{"Babák, Jan} \qquad \text{"}, 100108$$

Najdete lokalni extremy a sedlove body funkce 9-10*x^2+5*x*y+3*x^3+9*x^2*y-6*x*y^2

$funkce, 9 - 10\,x^2 + 5\,x\,y + 3\,x^3 + 9\,x^2\,y - 6\,x\,y^2, \; má \; gradient,$

$$\left[\begin{array}{c} -20\,x + 5\,y + 9\,x^2 + 18\,x\,y - 6\,y^2 \\ 5\,x + 9\,x^2 - 12\,x\,y \end{array} \right], ten \; je \; nulový \; v \; bodech,$$

$$\left[[x = 0, y = 0], \left[x = 0, y = \dfrac{5}{6} \right], \left[x = \dfrac{5}{51}, y = \dfrac{25}{51} \right], \left[x = \dfrac{5}{9}, y = \dfrac{5}{6} \right] \right]$$

$v \; bode, [x = 0, y = 0], je \; druhy \; diferencial,$

$$(u, v) \rightarrow -20\,u^2 + 10\,v\,u = -20\left(u - \dfrac{1}{4}\,v \right)^2 + \dfrac{5}{4}\,v^2$$

$v \; bode, \left[x = 0, y = \dfrac{5}{6} \right], je \; druhy \; diferencial,$

$$(u, v) \rightarrow -5\,u^2 - 10\,v\,u = -5\,(u + v)^2 + 5\,v^2$$

$v \; bode, \left[x = \dfrac{5}{51}, y = \dfrac{25}{51} \right], je \; druhy \; diferencial,$

$$(u, v) \rightarrow -\dfrac{160}{17}\,u^2 + \dfrac{30}{17}\,v\,u - \dfrac{20}{17}\,v^2 = -\dfrac{160}{17}\left(u - \dfrac{3}{32}\,v \right)^2 - \dfrac{35}{32}\,v^2$$

$v \; bode, \left[x = \dfrac{5}{9}, y = \dfrac{5}{6} \right], je \; druhy \; diferencial,$

$$(u, v) \rightarrow 5\,u^2 + 10\,v\,u - \dfrac{20}{3}\,v^2 = 5\,(u + v)^2 - \dfrac{35}{3}\,v^2$$

$LocalMin = [\;\;], LocalMax = \left[\left[\dfrac{5}{51}, \dfrac{25}{51} \right]\right], Saddle = \left[[0, 0], \left[0, \dfrac{5}{6} \right], \left[\dfrac{5}{9}, \dfrac{5}{6} \right] \right]$

$line :=$

$\qquad \text{"PMMAT2|174666|Bednáø, Martin} \qquad \text{|zk|ESF M-HPS HOSP [sem 2]"}$

$$zadani \; pro, \text{"Bednáø, Martin} \qquad \text{"}, 174666$$

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5\,x^2 - 8\,y^2 + 11\,x^3 - 3\,y^3$, *má gradient*, $\begin{bmatrix} 10\,x + 33\,x^2 \\ -16\,y - 9\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\ [x = 0, y = 0],\left[\ x = 0, y = \frac{-16}{9}\ \right],\left[\ x = \frac{-10}{33}, y = 0\ \right],\left[\ x = \frac{-10}{33}, y = \frac{-16}{9}\ \right]\ \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 10\,u^2 - 16\,v^2 = 10\,u^2 - 16\,v^2$$

v bode, $\left[\ x = 0, y = \frac{-16}{9}\ \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 10\,u^2 + 16\,v^2 = 10\,u^2 + 16\,v^2$$

v bode, $\left[\ x = \frac{-10}{33}, y = 0\ \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -10\,u^2 - 16\,v^2 = -10\,u^2 - 16\,v^2$$

v bode, $\left[\ x = \frac{-10}{33}, y = \frac{-16}{9}\ \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -10\,u^2 + 16\,v^2 = -10\,u^2 + 16\,v^2$$

$$LocalMin = \left[\left[\ 0, \frac{-16}{9}\ \right]\right], LocalMax = \left[\left[\ \frac{-10}{33}, 0\ \right]\right],$$

$$Saddle = \left[\ [0, 0],\left[\ \frac{-10}{33}, \frac{-16}{9}\ \right]\right]$$

line :=

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+2*y^2+x^3+15*y^3

funkce, $-9 + 3\,x^2 + 2\,y^2 + x^3 + 15\,y^3$, *má gradient*, $\begin{bmatrix} 6\,x + 3\,x^2 \\ 4\,y + 45\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\ [x = 0, y = 0],\left[\ x = 0, y = \frac{-4}{45}\ \right], [x = -2, y = 0],\left[\ x = -2, y = \frac{-4}{45}\ \right]\ \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 6\,u^2 + 4\,v^2 = 6\,u^2 + 4\,v^2$$

v bode, $\left[\ x = 0, y = \frac{-4}{45}\ \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 6\,u^2 - 4\,v^2 = 6\,u^2 - 4\,v^2$$

v bode, $[x = -2, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow -6\,u^2 + 4\,v^2 = -6\,u^2 + 4\,v^2$$

$v\ bode,\ \left[x = -2, y = \dfrac{-4}{45}\right], je\ druhy\ diferencial,$

$$(u, v) \rightarrow -6\,u^2 - 4\,v^2 = -6\,u^2 - 4\,v^2$$

$LocalMin = [[0, 0]],\ LocalMax = \left[\left[-2, \dfrac{-4}{45}\right]\right],\ Saddle = \left[\left[0, \dfrac{-4}{45}\right], [-2, 0]\right]$

$line := $ "PMMAT2|172164|Beníèková, Petra |zk|ESF B-HPS FP [sem 2

$zadani\ pro,$ "Beníèková, Petra   ", 172164

Najdete lokalni extremy a sedlove body funkce 11+10*x^2+9*x*y+5*y^2+17*x^3+17*x^2*y

$funkce,\ 11 + 10\,x^2 + 9\,x\,y + 5\,y^2 + 17\,x^3 + 17\,x^2\,y,\ má\ gradient,$

$$\begin{bmatrix} 20\,x + 9\,y + 51\,x^2 + 34\,x\,y \\ 9\,x + 10\,y + 17\,x^2 \end{bmatrix},\ ten\ je\ nulový\ v\ bodech,$$

$$\left[[x = 0, y = 0], \left[x = \dfrac{-7}{17}, y = \dfrac{7}{85}\right], \left[x = \dfrac{1}{2}, y = \dfrac{-7}{8}\right]\right]$$

$v\ bode,\ [x = 0, y = 0],\ je\ druhy\ diferencial,$

$$(u, v) \rightarrow 20\,u^2 + 18\,v\,u + 10\,v^2 = 20\left(u + \dfrac{9}{20}\,v\right)^2 + \dfrac{119}{20}\,v^2$$

$v\ bode,\ \left[x = \dfrac{-7}{17}, y = \dfrac{7}{85}\right], je\ druhy\ diferencial,$

$$(u, v) \rightarrow -\dfrac{96}{5}\,u^2 - 10\,v\,u + 10\,v^2 = -\dfrac{96}{5}\left(u + \dfrac{25}{96}\,v\right)^2 + \dfrac{1085}{96}\,v^2$$

$v\ bode,\ \left[x = \dfrac{1}{2}, y = \dfrac{-7}{8}\right], je\ druhy\ diferencial,$

$$(u, v) \rightarrow \dfrac{165}{4}\,u^2 + 52\,v\,u + 10\,v^2 = \dfrac{165}{4}\left(u + \dfrac{104}{165}\,v\right)^2 - \dfrac{1054}{165}\,v^2$$

$LocalMin = [[0, 0]],\ LocalMax = [\ ],\ Saddle = \left[\left[\dfrac{-7}{17}, \dfrac{7}{85}\right], \left[\dfrac{1}{2}, \dfrac{-7}{8}\right]\right]$

$line := $ "PMMAT2|174769|Blaha, Robert |zk|ESF M-HPS FP [sem 2

$zadani\ pro,$ "Blaha, Robert   ", 174769

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

$funkce,\ -4 + 16\,y - 9\,x^2 + 13\,y^2 - 7\,x^3 + y^3,\ má\ gradient,\ \begin{bmatrix} -18\,x - 21\,x^2 \\ 16 + 26\,y + 3\,y^2 \end{bmatrix},$

$ten\ je\ nulový\ v\ bodech,$

$$\left[[x = 0, y = -8], \left[x = 0, y = \dfrac{-2}{3}\right], \left[x = \dfrac{-6}{7}, y = -8\right], \left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3}\right]\right]$$

$v\ bode,\ [x = 0, y = -8],\ je\ druhy\ diferencial,$

$$(u, v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$$

$v\ bode, \left[x = 0, y = \dfrac{-2}{3}\right], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$

$v\ bode, \left[x = \dfrac{-6}{7}, y = \text{-}8\right], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$

$v\ bode, \left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3}\right], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$

$LocalMin = \left[\left[\dfrac{-6}{7}, \dfrac{-2}{3}\right]\right], LocalMax = [[0, \text{-}8]], Saddle = \left[\left[0, \dfrac{-2}{3}\right], \left[\dfrac{-6}{7}, \text{-}8\right]\right]$

$line := $ "PMMAT2|151092|Cífka, Michal |zk|ESF B-EKM POH [sem 2]"

$\qquad\qquad zadani\ pro,$ "Cífka, Michal   ", 151092

Najdete lokalni extremy a sedlove body funkce 3*x-11*x^2+16*x*y+13*x*y^2

$funkce,\ 3\,x - 11\,x^2 + 16\,x\,y + 13\,x\,y^2, má\ gradient, \begin{bmatrix} 3 - 22\,x + 16\,y + 13\,y^2 \\ 16\,x + 26\,x\,y \end{bmatrix},$

$\qquad ten\ je\ nulový\ v\ bodech,$

$\qquad \left[\left[x = \dfrac{-25}{286}, y = \dfrac{-8}{13}\right], [x = 0, y = \text{-}1], \left[x = 0, y = \dfrac{-3}{13}\right]\right]$

$v\ bode, \left[x = \dfrac{-25}{286}, y = \dfrac{-8}{13}\right], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow -22\,u^2 - \dfrac{25}{11}\,v^2 = -22\,u^2 - \dfrac{25}{11}\,v^2$

$v\ bode, [x = 0, y = \text{-}1], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow -22\,u^2 - 20\,v\,u = -22\left(u + \dfrac{5}{11}\,v\right)^2 + \dfrac{50}{11}\,v^2$

$v\ bode, \left[x = 0, y = \dfrac{-3}{13}\right], je\ druhy\ diferencial,$

$\qquad (u, v) \rightarrow -22\,u^2 + 20\,v\,u = -22\left(u - \dfrac{5}{11}\,v\right)^2 + \dfrac{50}{11}\,v^2$

$LocalMin = [\ ], LocalMax = \left[\left[\dfrac{-25}{286}, \dfrac{-8}{13}\right]\right], Saddle = \left[[0, \text{-}1], \left[0, \dfrac{-3}{13}\right]\right]$

$line := $ "PMMAT2|171784|Dianiᵗka, Róbert |zk|ESF B-HPS FP [sem 2"

$\qquad\qquad zadani\ pro,$ "Dianiᵗka, Róbert   ", 171784

Najdete lokalni extremy a sedlove body funkce 2+12*y-6*x^2+15*y^2-8*x^3+4*y^3

funkce, $2 + 12\,y - 6\,x^2 + 15\,y^2 - 8\,x^3 + 4\,y^3$, *má gradient*,

$$\begin{bmatrix} -12\,x - 24\,x^2 \\ 12 + 30\,y + 12\,y^2 \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[\, [x = 0, y = \text{-}2],\, \left[x = 0, y = \frac{\text{-}1}{2}\right],\, \left[x = \frac{\text{-}1}{2}, y = \text{-}2\right],\, \left[x = \frac{\text{-}1}{2}, y = \frac{\text{-}1}{2}\right]\right]$$

v bode, $[x = 0, y = \text{-}2]$, *je druhy diferencial*,

$$(u, v) \rightarrow -12\,u^2 - 18\,v^2 = -12\,u^2 - 18\,v^2$$

v bode, $\left[x = 0, y = \frac{\text{-}1}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -12\,u^2 + 18\,v^2 = -12\,u^2 + 18\,v^2$$

v bode, $\left[x = \frac{\text{-}1}{2}, y = \text{-}2\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 12\,u^2 - 18\,v^2 = 12\,u^2 - 18\,v^2$$

v bode, $\left[x = \frac{\text{-}1}{2}, y = \frac{\text{-}1}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 12\,u^2 + 18\,v^2 = 12\,u^2 + 18\,v^2$$

$$LocalMin = \left[\left[\frac{\text{-}1}{2}, \frac{\text{-}1}{2}\right]\right], LocalMax = [[0, \text{-}2]], Saddle = \left[\left[0, \frac{\text{-}1}{2}\right], \left[\frac{\text{-}1}{2}, \text{-}2\right]\right]$$

line := "PMMAT2|136915|Dole¾el, Tomá¹ |zk|ESF B-HPS NH [sem 4]"

$$\textit{zadani pro}, \text{"Dole¾el, Tomá¹   ,"} 136915$$

Najdete lokalni extremy a sedlove body funkce 16+4*x-8*x^2+10*x*y+6*x*y^2
funkce, $16 + 4\,x - 8\,x^2 + 10\,x\,y + 6\,x\,y^2$, *má gradient*,

$$\begin{bmatrix} 4 - 16\,x + 10\,y + 6\,y^2 \\ 10\,x + 12\,x\,y \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[\left[x = \frac{\text{-}1}{96}, y = \frac{\text{-}5}{6}\right],\, [x = 0, y = \text{-}1],\, \left[x = 0, y = \frac{\text{-}2}{3}\right]\right]$$

v bode, $\left[x = \frac{\text{-}1}{96}, y = \frac{\text{-}5}{6}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -16\,u^2 - \frac{1}{8}\,v^2 = -16\,u^2 - \frac{1}{8}\,v^2$$

v bode, $[x = 0, y = \text{-}1]$, *je druhy diferencial*,

$$(u, v) \rightarrow -16\,u^2 - 4\,v\,u = -16\left(u + \frac{1}{8}\,v\right)^2 + \frac{1}{4}\,v^2$$

v bode, $\left[x = 0, y = \frac{\text{-}2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -16\,u^2 + 4\,v\,u = -16\left(u - \frac{1}{8}\,v\right)^2 + \frac{1}{4}\,v^2$$

$LocalMin = [\ ], LocalMax = \left[\left[\dfrac{-1}{96}\ \dfrac{-5}{6}\right]\right], Saddle = \left[\ [0,\,-1],\left[\,0,\dfrac{-2}{3}\right]\right]$

$line := \text{"PMMAT2|171845|Fajtová, Veronika}\quad\text{|zk|ESF B-HPS FP [sem 2]}$

$\qquad\qquad zadani\ pro,\ \text{"Fajtová, Veronika}\quad\text{"},\ 171845$

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

$funkce,\ -4 + 16\,y - 9\,x^2 + 13\,y^2 - 7\,x^3 + y^3,\ má\ gradient,\ \begin{bmatrix} -18\,x - 21\,x^2 \\ 16 + 26\,y + 3\,y^2 \end{bmatrix},$

$\qquad ten\ je\ nulový\ v\ bodech,$

$$\left[\ [x = 0,\, y = -8],\left[x = 0,\, y = \dfrac{-2}{3}\right],\left[x = \dfrac{-6}{7},\, y = -8\right],\left[x = \dfrac{-6}{7},\, y = \dfrac{-2}{3}\right]\right]$$

$v\ bode,\ [x = 0,\, y = -8],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$

$v\ bode,\left[x = 0,\, y = \dfrac{-2}{3}\right],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$

$v\ bode,\left[x = \dfrac{-6}{7},\, y = -8\right],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$

$v\ bode,\left[x = \dfrac{-6}{7},\, y = \dfrac{-2}{3}\right],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$

$LocalMin = \left[\left[\dfrac{-6}{7},\dfrac{-2}{3}\right]\right], LocalMax = [\,[0,\,-8]\,], Saddle = \left[\left[\,0,\dfrac{-2}{3}\right],\left[\dfrac{-6}{7},\,-8\right]\right]$

$line := \text{"PMMAT2|172168|Ferèák, Ondrej}\quad\text{|zk|ESF B-HPS NH [sem 2]"}$

$\qquad\qquad zadani\ pro,\ \text{"Ferèák, Ondrej}\quad\text{"},\ 172168$

Najdete lokalni extremy a sedlove body funkce -10-9*y-9*x^2+11*y^2-9*x^3-x^4

$funkce,\ -10 - 9\,y - 9\,x^2 + 11\,y^2 - 9\,x^3 - x^4,\ má\ gradient,$

$\begin{bmatrix} -18\,x - 27\,x^2 - 4\,x^3 \\ -9 + 22\,y \end{bmatrix},\ ten\ je\ nulový\ v\ bodech,$

$$\left[\left[x = 0,\, y = \dfrac{9}{22}\right],\left[x = -6,\, y = \dfrac{9}{22}\right],\left[x = \dfrac{-3}{4},\, y = \dfrac{9}{22}\right]\right]$$

$v\ bode,\left[x = 0,\, y = \dfrac{9}{22}\right],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$

$v\ bode,\left[x = -6,\, y = \dfrac{9}{22}\right],\ je\ druhy\ diferencial,$

$\qquad (u,\,v) \rightarrow -126\,u^2 + 22\,v^2 = -126\,u^2 + 22\,v^2$

v bode, $\left[x = \dfrac{-3}{4}, y = \dfrac{9}{22} \right]$, je druhy diferencial,

$$(u, v) \rightarrow \frac{63}{4} u^2 + 22 v^2 = \frac{63}{4} u^2 + 22 v^2$$

$LocalMin = \left[\left[\dfrac{-3}{4}, \dfrac{9}{22} \right] \right]$, $LocalMax = [\ ]$, $Saddle = \left[\left[0, \dfrac{9}{22} \right], \left[-6, \dfrac{9}{22} \right] \right]$

$line := $ "PMMAT2|172186|Florová, Zuzana |zk|ESF B-HPS RRS [sem 2]"

Najdete lokalni extremy a sedlove body funkce 7+9*x+8*x^2+3*x*y-6*x^2*y-6*x*y^2

funkce, $7 + 9x + 8x^2 + 3xy - 6x^2 y - 6xy^2$, *má gradient*,

$$\begin{bmatrix} 9 + 16x + 3y - 12xy - 6y^2 \\ 3x - 6x^2 - 12xy \end{bmatrix}, \text{ten je nulový v bodech,}$$

$$\left[[x = 0, y = -1], \left[x = 0, y = \frac{3}{2} \right], \left[x = \frac{-25}{18}, y = \frac{17}{18} \right], \left[x = \frac{-3}{2}, y = 1 \right] \right]$$

v bode, $[x = 0, y = -1]$, je druhy diferencial,

$$(u, v) \rightarrow 28 u^2 + 30 v u = 28 \left(u + \frac{15}{28} v \right)^2 - \frac{225}{28} v^2$$

v bode, $\left[x = 0, y = \dfrac{3}{2} \right]$, je druhy diferencial,

$$(u, v) \rightarrow -2 u^2 - 30 v u = -2 \left(u + \frac{15}{2} v \right)^2 + \frac{225}{2} v^2$$

v bode, $\left[x = \dfrac{-25}{18}, y = \dfrac{17}{18} \right]$, je druhy diferencial,

$$(u, v) \rightarrow \frac{14}{3} u^2 + \frac{50}{3} v u + \frac{50}{3} v^2 = \frac{14}{3} \left(u + \frac{25}{14} v \right)^2 + \frac{25}{14} v^2$$

v bode, $\left[x = \dfrac{-3}{2}, y = 1 \right]$, je druhy diferencial,

$$(u, v) \rightarrow 4 u^2 + 18 v u + 18 v^2 = 4 \left(u + \frac{9}{4} v \right)^2 - \frac{9}{4} v^2$$

$LocalMin = \left[\left[\dfrac{-25}{18}, \dfrac{17}{18} \right] \right]$, $LocalMax = [\ ]$,

$Saddle = \left[[0, -1], \left[0, \dfrac{3}{2} \right], \left[\dfrac{-3}{2}, 1 \right] \right]$

$line := $ "PMMAT2|135083|Havli¹ta, Luká¹ |zk|ESF B-HPS NH [sem 2

Najdete lokalni extremy a sedlove body funkce 13+15*x^2+16*y^2+10*x^3-y^3

funkce, $13 + 15\,x^2 + 16\,y^2 + 10\,x^3 - y^3$, *má gradient*, $\begin{bmatrix} 30\,x + 30\,x^2 \\ 32\,y - 3\,y^2 \end{bmatrix}$,

    ten je nulový v bodech,

$$\left[\ [x = 0, y = 0],\ \left[x = 0, y = \frac{32}{3}\right],\ [x = \text{-}1, y = 0],\ \left[x = \text{-}1, y = \frac{32}{3}\right]\right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

    $(u, v) \rightarrow 30\,u^2 + 32\,v^2 = 30\,u^2 + 32\,v^2$

v bode, $\left[x = 0, y = \frac{32}{3}\right]$, *je druhy diferencial*,

    $(u, v) \rightarrow 30\,u^2 - 32\,v^2 = 30\,u^2 - 32\,v^2$

v bode, $[x = \text{-}1, y = 0]$, *je druhy diferencial*,

    $(u, v) \rightarrow -30\,u^2 + 32\,v^2 = -30\,u^2 + 32\,v^2$

v bode, $\left[x = \text{-}1, y = \frac{32}{3}\right]$, *je druhy diferencial*,

    $(u, v) \rightarrow -30\,u^2 - 32\,v^2 = -30\,u^2 - 32\,v^2$

$LocalMin = [\,[\,0, 0\,]\,], LocalMax = \left[\left[\,\text{-}1, \frac{32}{3}\,\right]\right], Saddle = \left[\left[\,0, \frac{32}{3}\,\right], [\text{-}1, 0]\right]$

$line := $ "PMMAT2|171776|Holasová, Pavla |zk|ESF B-HPS FP [sem 2

        zadani pro, "Holasová, Pavla   ", 171776

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5\,x^2 - 8\,y^2 + 11\,x^3 - 3\,y^3$, *má gradient*, $\begin{bmatrix} 10\,x + 33\,x^2 \\ -16\,y - 9\,y^2 \end{bmatrix}$,

    ten je nulový v bodech,

$$\left[\ [x = 0, y = 0],\ \left[x = 0, y = \frac{\text{-}16}{9}\right],\ \left[x = \frac{\text{-}10}{33}, y = 0\right],\ \left[x = \frac{\text{-}10}{33}, y = \frac{\text{-}16}{9}\right]\right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

    $(u, v) \rightarrow 10\,u^2 - 16\,v^2 = 10\,u^2 - 16\,v^2$

v bode, $\left[x = 0, y = \frac{\text{-}16}{9}\right]$, *je druhy diferencial*,

    $(u, v) \rightarrow 10\,u^2 + 16\,v^2 = 10\,u^2 + 16\,v^2$

v bode, $\left[x = \frac{\text{-}10}{33}, y = 0\right]$, *je druhy diferencial*,

    $(u, v) \rightarrow -10\,u^2 - 16\,v^2 = -10\,u^2 - 16\,v^2$

v bode, $\left[x = \frac{\text{-}10}{33}, y = \frac{\text{-}16}{9}\right]$, *je druhy diferencial*,

    $(u, v) \rightarrow -10\,u^2 + 16\,v^2 = -10\,u^2 + 16\,v^2$

$$LocalMin = \left[\left[0, \frac{-16}{9}\right]\right], LocalMax = \left[\left[\frac{-10}{33}, 0\right]\right],$$

$$Saddle = \left[[0, 0], \left[\frac{-10}{33}, \frac{-16}{9}\right]\right]$$

$line :=$ "PMMAT2|171762|Hurníková, Tereza |zk|ESF B-HPS FP [sem 2]"

$zadani\ pro$, "Hurníková, Tereza ", 171762

Najdete lokalni extremy a sedlove body funkce 5+10*x^2+10*x*y+12*y^2+4*x^3+6*x^2*y

$funkce$, $5 + 10\,x^2 + 10\,x\,y + 12\,y^2 + 4\,x^3 + 6\,x^2\,y$, $má\ gradient$,

$$\begin{bmatrix} 20\,x + 10\,y + 12\,x^2 + 12\,x\,y \\ 10\,x + 24\,y + 6\,x^2 \end{bmatrix}, ten\ je\ nulový\ v\ bodech,$$

$$\left[[x = 0, y = 0], \left[x = \frac{-5}{3}, y = 0\right], \left[x = \frac{19}{6}, y = \frac{-551}{144}\right]\right]$$

$v\ bode$, $[x = 0, y = 0]$, $je\ druhy\ diferencial$,

$$(u, v) \rightarrow 20\,u^2 + 20\,v\,u + 24\,v^2 = 20\left(u + \frac{1}{2}\,v\right)^2 + 19\,v^2$$

$v\ bode$, $\left[x = \frac{-5}{3}, y = 0\right]$, $je\ druhy\ diferencial$,

$$(u, v) \rightarrow -20\,u^2 - 20\,v\,u + 24\,v^2 = -20\left(u + \frac{1}{2}\,v\right)^2 + 29\,v^2$$

$v\ bode$, $\left[x = \frac{19}{6}, y = \frac{-551}{144}\right]$, $je\ druhy\ diferencial$,

$$(u, v) \rightarrow \frac{601}{12}\,u^2 + 96\,v\,u + 24\,v^2 = \frac{601}{12}\left(u + \frac{576}{601}\,v\right)^2 - \frac{13224}{601}\,v^2$$

$$LocalMin = [[0, 0]], LocalMax = [\ ], Saddle = \left[\left[\frac{-5}{3}, 0\right], \left[\frac{19}{6}, \frac{-551}{144}\right]\right]$$

$line :=$ "PMMAT2| 99517|Charvát, Ondøej |zk|ESF B-HPS RRS [sem 2]"

$zadani\ pro$, "Charvát, Ondøej ", 99517

Najdete lokalni extremy a sedlove body funkce 5+15*x+8*x*y-11*x^3-x^2*y-9*x^3*y

$funkce$, $5 + 15\,x + 8\,x\,y - 11\,x^3 - x^2\,y - 9\,x^3\,y$, $má\ gradient$,

$$\begin{bmatrix} 15 + 8\,y - 33\,x^2 - 2\,x\,y - 27\,x^2\,y \\ 8\,x - x^2 - 9\,x^3 \end{bmatrix}, ten\ je\ nulový\ v\ bodech,$$

$$\left[\left[x = 0, y = \frac{-15}{8}\right], \left[x = -1, y = \frac{-18}{17}\right], \left[x = \frac{8}{9}, y = \frac{-299}{408}\right]\right]$$

$v\ bode$, $\left[x = 0, y = \frac{-15}{8}\right]$, $je\ druhy\ diferencial$,

$$(u, v) \rightarrow \frac{15}{4}\,u^2 + 16\,v\,u = \frac{15}{4}\left(u + \frac{32}{15}\,v\right)^2 - \frac{256}{15}\,v^2$$

v bode, $\left[x = \text{-}1, y = \dfrac{\text{-}18}{17} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow \frac{186}{17} u^2 - 34\, v\, u = \frac{186}{17} \left(u - \frac{289}{186} v \right)^2 - \frac{4913}{186} v^2$$

v bode, $\left[x = \dfrac{8}{9}, y = \dfrac{\text{-}299}{408} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -\frac{4493}{204} u^2 - \frac{272}{9} v\, u = -\frac{4493}{204} \left(u + \frac{9248}{13479} v \right)^2 + \frac{1257728}{121311} v^2$$

$LocalMin = [\ \ ], LocalMax = [\ \ ], Saddle = \left[\left[0, \dfrac{\text{-}15}{8} \right], \left[\text{-}1, \dfrac{\text{-}18}{17} \right], \left[\dfrac{8}{9}, \dfrac{\text{-}299}{408} \right] \right]$

$line := $ "PMMAT2|174783|Jakubcová, Simona |zk|ESF M-HPS HOSP [

sem 2]"

<center>zadani pro , "Jakubcová, Simona   ", 174783</center>

Najdete lokalni extremy a sedlove body funkce 8-3*x-9*x^2+x*y+4*x*y^2

funkce, $8 - 3\, x - 9\, x^2 + x\, y + 4\, x\, y^2$, *má gradient ,* $\begin{bmatrix} -3 - 18\, x + y + 4\, y^2 \\ x + 8\, x\, y \end{bmatrix}$,

ten je nulový v bodech ,

$$\left[\left[x = \frac{\text{-}49}{288}, y = \frac{\text{-}1}{8} \right], [x = 0, y = \text{-}1], \left[x = 0, y = \frac{3}{4} \right] \right]$$

v bode, $\left[x = \dfrac{\text{-}49}{288}, y = \dfrac{\text{-}1}{8} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -18\, u^2 - \frac{49}{36} v^2 = -18\, u^2 - \frac{49}{36} v^2$$

v bode, $[x = 0, y = \text{-}1]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -18\, u^2 - 14\, v\, u = -18 \left(u + \frac{7}{18} v \right)^2 + \frac{49}{18} v^2$$

v bode, $\left[x = 0, y = \dfrac{3}{4} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -18\, u^2 + 14\, v\, u = -18 \left(u - \frac{7}{18} v \right)^2 + \frac{49}{18} v^2$$

$LocalMin = [\ \ ], LocalMax = \left[\left[\dfrac{\text{-}49}{288}, \dfrac{\text{-}1}{8} \right] \right], Saddle = \left[[0, \text{-}1], \left[0, \dfrac{3}{4} \right] \right]$

$line := $ "PMMAT2| 73899|Jurèek, Daniel |zk|ESF B-HPS VEK [sem 6

<center>zadani pro , "Jurèek, Daniel   ", 73899</center>

Najdete lokalni extremy a sedlove body funkce 4+3*x+11*y^2-9*x^3+12*y^3

funkce, $4 + 3\,x + 11\,y^2 - 9\,x^3 + 12\,y^3$, *má gradient*, $\begin{bmatrix} 3 - 27\,x^2 \\ 22\,y + 36\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{1}{3}, y = 0 \right], \left[x = \frac{-1}{3}, y = 0 \right], \left[x = \frac{1}{3}, y = \frac{-11}{18} \right], \left[x = \frac{-1}{3}, y = \frac{-11}{18} \right] \right]$$

v bode, $\left[x = \frac{1}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$$

v bode, $\left[x = \frac{-1}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$$

v bode, $\left[x = \frac{1}{3}, y = \frac{-11}{18} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$$

v bode, $\left[x = \frac{-1}{3}, y = \frac{-11}{18} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$$

$LocalMin = \left[\left[\frac{-1}{3}, 0 \right] \right]$, $LocalMax = \left[\left[\frac{1}{3}, \frac{-11}{18} \right] \right]$,

$Saddle = \left[\left[\frac{1}{3}, 0 \right], \left[\frac{-1}{3}, \frac{-11}{18} \right] \right]$

line := "PMMAT2|171933|Kamenská, Katarína |zk|ESF B-HPS FP [sem 2]"

zadani pro, "Kamenská, Katarína   ", 171933

Najdete lokalni extremy a sedlove body funkce 5-2*x^2-x*y-5*x*y^2+y^3

funkce, $5 - 2\,x^2 - x\,y - 5\,x\,y^2 + y^3$, *má gradient*, $\begin{bmatrix} -4\,x - y - 5\,y^2 \\ -x - 10\,x\,y + 3\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = 0], \left[x = \frac{-3}{16}, y = \frac{-1}{2} \right], \left[x = \frac{1}{125}, y = \frac{-1}{25} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow -4\,u^2 - 2\,v\,u = -4\left(u + \frac{1}{4}\,v \right)^2 + \frac{1}{4}\,v^2$$

v bode, $\left[x = \frac{-3}{16}, y = \frac{-1}{2} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -4\,u^2 + 8\,v\,u - \frac{9}{8}\,v^2 = -4\,(u - v)^2 + \frac{23}{8}\,v^2$$

$v\ bode,\left[x=\dfrac{1}{125},y=\dfrac{-1}{25}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow -4\,u^2-\dfrac{6}{5}\,v\,u-\dfrac{8}{25}\,v^2=-4\left(u+\dfrac{3}{20}\,v\right)^2-\dfrac{23}{100}\,v^2$$

$LocalMin=[\ ],\ LocalMax=\left[\left[\dfrac{1}{125},\dfrac{-1}{25}\right]\right],\ Saddle=\left[[0,0],\left[\dfrac{-3}{16},\dfrac{-1}{2}\right]\right]$

$line:=$"PMMAT2|170527|Kantor, Ondøej |zk|ESF B-HPS FP [sem 2]"

$\qquad zadani\ pro,$ "Kantor, Ondøej   ", 170527

Najdete lokalni extremy a sedlove body funkce 4+3*x+11*y^2-9*x^3+12*y^3

$funkce,\ 4+3\,x+11\,y^2-9\,x^3+12\,y^3,\ má\ gradient,\left[\begin{array}{c}3-27\,x^2\\22\,y+36\,y^2\end{array}\right],$

$\quad ten\ je\ nulový\ v\ bodech,$

$$\left[\left[x=\dfrac{1}{3},y=0\right],\left[x=\dfrac{-1}{3},y=0\right],\left[x=\dfrac{1}{3},y=\dfrac{-11}{18}\right],\left[x=\dfrac{-1}{3},y=\dfrac{-11}{18}\right]\right]$$

$v\ bode,\left[x=\dfrac{1}{3},y=0\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow -18\,u^2+22\,v^2=-18\,u^2+22\,v^2$$

$v\ bode,\left[x=\dfrac{-1}{3},y=0\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow 18\,u^2+22\,v^2=18\,u^2+22\,v^2$$

$v\ bode,\left[x=\dfrac{1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow -18\,u^2-22\,v^2=-18\,u^2-22\,v^2$$

$v\ bode,\left[x=\dfrac{-1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow 18\,u^2-22\,v^2=18\,u^2-22\,v^2$$

$LocalMin=\left[\left[\dfrac{-1}{3},0\right]\right],\ LocalMax=\left[\left[\dfrac{1}{3},\dfrac{-11}{18}\right]\right],$

$\quad Saddle=\left[\left[\dfrac{1}{3},0\right],\left[\dfrac{-1}{3},\dfrac{-11}{18}\right]\right]$

$line:=$

$\qquad$"PMMAT2|174836|Kapoun, Vítìzslav |zk|ESF M-HPS VEK [sem 2]"

$\qquad\qquad zadani\ pro,$ "Kapoun, Vítìzslav   ", 174836

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5x^2 - 8y^2 + 11x^3 - 3y^3$, *má gradient*, $\begin{bmatrix} 10x + 33x^2 \\ -16y - 9y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = 0], \left[x = 0, y = \frac{-16}{9} \right], \left[x = \frac{-10}{33}, y = 0 \right], \left[x = \frac{-10}{33}, y = \frac{-16}{9} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 10u^2 - 16v^2 = 10u^2 - 16v^2$$

v bode, $\left[x = 0, y = \frac{-16}{9} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 10u^2 + 16v^2 = 10u^2 + 16v^2$$

v bode, $\left[x = \frac{-10}{33}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -10u^2 - 16v^2 = -10u^2 - 16v^2$$

v bode, $\left[x = \frac{-10}{33}, y = \frac{-16}{9} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -10u^2 + 16v^2 = -10u^2 + 16v^2$$

$LocalMin = \left[\left[0, \frac{-16}{9} \right] \right]$, $LocalMax = \left[\left[\frac{-10}{33}, 0 \right] \right]$,

$Saddle = \left[[0, 0], \left[\frac{-10}{33}, \frac{-16}{9} \right] \right]$

line :=

"PMMAT2|174675|Kedroò, Milan |zk|ESF M-HPS HOSP [sem 2]"

zadani pro, "Kedroò, Milan   ", 174675

Najdete lokalni extremy a sedlove body funkce 4+3*x+11*y^2-9*x^3+12*y^3

funkce, $4 + 3x + 11y^2 - 9x^3 + 12y^3$, *má gradient*, $\begin{bmatrix} 3 - 27x^2 \\ 22y + 36y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{1}{3}, y = 0 \right], \left[x = \frac{-1}{3}, y = 0 \right], \left[x = \frac{1}{3}, y = \frac{-11}{18} \right], \left[x = \frac{-1}{3}, y = \frac{-11}{18} \right] \right]$$

v bode, $\left[x = \frac{1}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18u^2 + 22v^2 = -18u^2 + 22v^2$$

v bode, $\left[x = \frac{-1}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18u^2 + 22v^2 = 18u^2 + 22v^2$$

$v\ bode,\left[x=\dfrac{1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial\,,$

$$(u,v)\rightarrow -18\,u^2-22\,v^2=-18\,u^2-22\,v^2$$

$v\ bode,\left[x=\dfrac{-1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial\,,$

$$(u,v)\rightarrow 18\,u^2-22\,v^2=18\,u^2-22\,v^2$$

$LocalMin=\left[\left[\dfrac{-1}{3},0\right]\right],LocalMax=\left[\left[\dfrac{1}{3},\dfrac{-11}{18}\right]\right],$

$Saddle=\left[\left[\dfrac{1}{3},0\right],\left[\dfrac{-1}{3},\dfrac{-11}{18}\right]\right]$

Najdete lokalni extremy a sedlove body funkce 13*x^2+9*x*y+9*x^3+13*x^4-x^3*y

$funkce,\ 13\,x^2+9\,x\,y+9\,x^3+13\,x^4-x^3\,y,\ má\ gradient\,,$

$$\left[\begin{array}{c}26\,x+9\,y+27\,x^2+52\,x^3-3\,x^2\,y\\9\,x-x^3\end{array}\right],ten\ je\ nulový\ v\ bodech,$$

$$\left[[x=0,y=0],\left[x=3,y=\dfrac{575}{6}\right],\left[x=-3,y=\dfrac{-413}{6}\right]\right]$$

$v\ bode,\ [x=0,y=0],je\ druhy\ diferencial\,,$

$$(u,v)\rightarrow 26\,u^2+18\,v\,u=26\left(u+\dfrac{9}{26}v\right)^2-\dfrac{81}{26}v^2$$

$v\ bode,\left[x=3,y=\dfrac{575}{6}\right],je\ druhy\ diferencial\,,$

$$(u,v)\rightarrow -133\,u^2-36\,v\,u=-133\left(u+\dfrac{18}{133}v\right)^2+\dfrac{324}{133}v^2$$

$v\ bode,\left[x=-3,y=\dfrac{-413}{6}\right],je\ druhy\ diferencial\,,$

$$(u,v)\rightarrow 29\,u^2-36\,v\,u=29\left(u-\dfrac{18}{29}v\right)^2-\dfrac{324}{29}v^2$$

$LocalMin=[\ ],LocalMax=[\ ],Saddle=\left[[0,0],\left[3,\dfrac{575}{6}\right],\left[-3,\dfrac{-413}{6}\right]\right]$

Najdete lokalni extremy a sedlove body funkce 14+17*x^2+16*y^2-10*x^3+8*x^2*y

funkce, $14 + 17 x^2 + 16 y^2 - 10 x^3 + 8 x^2 y$, *má gradient*,

$$\begin{bmatrix} 34 x - 30 x^2 + 16 x y \\ 32 y + 8 x^2 \end{bmatrix}, \text{ten je nulový v bodech,}$$

$$\left[[x = 0, y = 0], \left[x = \frac{-17}{2}, y = \frac{-289}{16} \right], \left[x = 1, y = \frac{-1}{4} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 34 u^2 + 32 v^2 = 34 u^2 + 32 v^2$$

v bode, $\left[x = \frac{-17}{2}, y = \frac{-289}{16} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 255 u^2 - 272 v u + 32 v^2 = 255 \left(u - \frac{8}{15} v \right)^2 - \frac{608}{15} v^2$$

v bode, $\left[x = 1, y = \frac{-1}{4} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -30 u^2 + 32 v u + 32 v^2 = -30 \left(u - \frac{8}{15} v \right)^2 + \frac{608}{15} v^2$$

$LocalMin = [[0, 0]], LocalMax = [\ ], Saddle = \left[\left[\frac{-17}{2}, \frac{-289}{16} \right], \left[1, \frac{-1}{4} \right] \right]$

$line :=$

"PMMAT2|174678|Ko¹íèková, Irena |zk|ESF M-EKM POH [sem 2]"

zadani pro, "Ko¹íèková, Irena   ", 174678

Najdete lokalni extremy a sedlove body funkce 7+14*x^2-6*x*y+y^2+5*x*y^2

funkce, $7 + 14 x^2 - 6 x y + y^2 + 5 x y^2$, *má gradient*, $\begin{bmatrix} 28 x - 6 y + 5 y^2 \\ -6 x + 2 y + 10 x y \end{bmatrix}$,

ten je nulový v bodech, $\left[[x = 0, y = 0], \left[x = \frac{-1}{20}, y = \frac{-1}{5} \right], \left[x = \frac{-2}{7}, y = 2 \right] \right]$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 28 u^2 - 12 v u + 2 v^2 = 28 \left(u - \frac{3}{14} v \right)^2 + \frac{5}{7} v^2$$

v bode, $\left[x = \frac{-1}{20}, y = \frac{-1}{5} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 28 u^2 - 16 v u + \frac{3}{2} v^2 = 28 \left(u - \frac{2}{7} v \right)^2 - \frac{11}{14} v^2$$

v bode, $\left[x = \frac{-2}{7}, y = 2 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 28 u^2 + 28 v u - \frac{6}{7} v^2 = 28 \left(u + \frac{1}{2} v \right)^2 - \frac{55}{7} v^2$$

$LocalMin = [[0, 0]], LocalMax = [\ ], Saddle = \left[\left[\dfrac{-1}{20}, \dfrac{-1}{5}\right], \left[\dfrac{-2}{7}, 2\right]\right]$

$line :=$

"PMMAT2|174797|Kozáèková, Barbora |zk|ESF M-HPS RRS [sem 2]"

$zadani\ pro$, "Kozáèková, Barbora ", 174797

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+2*y^2+x^3+15*y^3

$funkce$, $-9 + 3\,x^2 + 2\,y^2 + x^3 + 15\,y^3$, $má\ gradient$, $\begin{bmatrix} 6\,x + 3\,x^2 \\ 4\,y + 45\,y^2 \end{bmatrix}$,

$ten\ je\ nulový\ v\ bodech$,

$$\left[\ [x = 0, y = 0],\ \left[x = 0, y = \dfrac{-4}{45}\right], [x = -2, y = 0], \left[x = -2, y = \dfrac{-4}{45}\right]\right]$$

$v\ bode$, $[x = 0, y = 0]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow 6\,u^2 + 4\,v^2 = 6\,u^2 + 4\,v^2$

$v\ bode$, $\left[x = 0, y = \dfrac{-4}{45}\right]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow 6\,u^2 - 4\,v^2 = 6\,u^2 - 4\,v^2$

$v\ bode$, $[x = -2, y = 0]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow -6\,u^2 + 4\,v^2 = -6\,u^2 + 4\,v^2$

$v\ bode$, $\left[x = -2, y = \dfrac{-4}{45}\right]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow -6\,u^2 - 4\,v^2 = -6\,u^2 - 4\,v^2$

$LocalMin = [[0, 0]], LocalMax = \left[\left[-2, \dfrac{-4}{45}\right]\right], Saddle = \left[\left[0, \dfrac{-4}{45}\right], [-2, 0]\right]$

$line :=$ "PMMAT2| 78782|Kozel, Petr |zk|ESF B-HPS RRS [sem 4]"

$zadani\ pro$, "Kozel, Petr   ", 78782

Najdete lokalni extremy a sedlove body funkce 4-11*x^2+12*y^2+16*x^3+5*y^3

$funkce$, $4 - 11\,x^2 + 12\,y^2 + 16\,x^3 + 5\,y^3$, $má\ gradient$, $\begin{bmatrix} -22\,x + 48\,x^2 \\ 24\,y + 15\,y^2 \end{bmatrix}$,

$ten\ je\ nulový\ v\ bodech$,

$$\left[\ [x = 0, y = 0],\ \left[x = 0, y = \dfrac{-8}{5}\right], \left[x = \dfrac{11}{24}, y = 0\right], \left[x = \dfrac{11}{24}, y = \dfrac{-8}{5}\right]\right]$$

$v\ bode$, $[x = 0, y = 0]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow -22\,u^2 + 24\,v^2 = -22\,u^2 + 24\,v^2$

$v\ bode$, $\left[x = 0, y = \dfrac{-8}{5}\right]$, $je\ druhy\ diferencial$,

$(u, v) \rightarrow -22\,u^2 - 24\,v^2 = -22\,u^2 - 24\,v^2$

v bode, $\left[x = \dfrac{11}{24}, y = 0\right]$, je druhy diferencial,

$$(u, v) \rightarrow 22\,u^2 + 24\,v^2 = 22\,u^2 + 24\,v^2$$

v bode, $\left[x = \dfrac{11}{24}, y = \dfrac{-8}{5}\right]$, je druhy diferencial,

$$(u, v) \rightarrow 22\,u^2 - 24\,v^2 = 22\,u^2 - 24\,v^2$$

$LocalMin = \left[\left[\dfrac{11}{24}, 0\right]\right], LocalMax = \left[\left[0, \dfrac{-8}{5}\right]\right], Saddle = \left[\,[0, 0], \left[\dfrac{11}{24}, \dfrac{-8}{5}\right]\right]$

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5\,x^2 - 8\,y^2 + 11\,x^3 - 3\,y^3$, má gradient, $\begin{bmatrix} 10\,x + 33\,x^2 \\ -16\,y - 9\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\,[x = 0, y = 0], \left[x = 0, y = \dfrac{-16}{9}\right], \left[x = \dfrac{-10}{33}, y = 0\right], \left[x = \dfrac{-10}{33}, y = \dfrac{-16}{9}\right]\right]$$

v bode, $[x = 0, y = 0]$, je druhy diferencial,

$$(u, v) \rightarrow 10\,u^2 - 16\,v^2 = 10\,u^2 - 16\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-16}{9}\right]$, je druhy diferencial,

$$(u, v) \rightarrow 10\,u^2 + 16\,v^2 = 10\,u^2 + 16\,v^2$$

v bode, $\left[x = \dfrac{-10}{33}, y = 0\right]$, je druhy diferencial,

$$(u, v) \rightarrow -10\,u^2 - 16\,v^2 = -10\,u^2 - 16\,v^2$$

v bode, $\left[x = \dfrac{-10}{33}, y = \dfrac{-16}{9}\right]$, je druhy diferencial,

$$(u, v) \rightarrow -10\,u^2 + 16\,v^2 = -10\,u^2 + 16\,v^2$$

$LocalMin = \left[\left[0, \dfrac{-16}{9}\right]\right], LocalMax = \left[\left[\dfrac{-10}{33}, 0\right]\right],$

$Saddle = \left[\,[0, 0], \left[\dfrac{-10}{33}, \dfrac{-16}{9}\right]\right]$

Najdete lokalni extremy a sedlove body funkce 17-6*y+4*x^2-11*y^2-10*x^3-4*y^3

funkce, $17 - 6\,y + 4\,x^2 - 11\,y^2 - 10\,x^3 - 4\,y^3$, má gradient,

$\begin{bmatrix} 8\,x - 30\,x^2 \\ -6 - 22\,y - 12\,y^2 \end{bmatrix}$, ten je nulový v bodech,

$$\left[\left[x=0, y=\frac{-3}{2}\right], \left[x=0, y=\frac{-1}{3}\right], \left[x=\frac{4}{15}, y=\frac{-3}{2}\right], \left[x=\frac{4}{15}, y=\frac{-1}{3}\right]\right]$$

v bode, $\left[x=0, y=\dfrac{-3}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 8\,u^2 + 14\,v^2 = 8\,u^2 + 14\,v^2$$

v bode, $\left[x=0, y=\dfrac{-1}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 8\,u^2 - 14\,v^2 = 8\,u^2 - 14\,v^2$$

v bode, $\left[x=\dfrac{4}{15}, y=\dfrac{-3}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -8\,u^2 + 14\,v^2 = -8\,u^2 + 14\,v^2$$

v bode, $\left[x=\dfrac{4}{15}, y=\dfrac{-1}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -8\,u^2 - 14\,v^2 = -8\,u^2 - 14\,v^2$$

$LocalMin = \left[\left[0, \dfrac{-3}{2}\right]\right]$, $LocalMax = \left[\left[\dfrac{4}{15}, \dfrac{-1}{3}\right]\right]$,

$Saddle = \left[\left[0, \dfrac{-1}{3}\right], \left[\dfrac{4}{15}, \dfrac{-3}{2}\right]\right]$

line :=

Najdete lokalni extremy a sedlove body funkce 11-4*y-x^2+4*y^2-3*x^3+6*x^2*y

funkce, $11 - 4\,y - x^2 + 4\,y^2 - 3\,x^3 + 6\,x^2\,y$, *má gradient*,

$$\begin{bmatrix} -2\,x - 9\,x^2 + 12\,x\,y \\ -4 + 8\,y + 6\,x^2 \end{bmatrix}, \text{ *ten je nulový v bodech*,}$$

$$\left[\left[x=0, y=\frac{1}{2}\right], \left[x=\frac{-4}{3}, y=\frac{-5}{6}\right], \left[x=\frac{1}{3}, y=\frac{5}{12}\right]\right]$$

v bode, $\left[x=0, y=\dfrac{1}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 4\,u^2 + 8\,v^2 = 4\,u^2 + 8\,v^2$$

v bode, $\left[x=\dfrac{-4}{3}, y=\dfrac{-5}{6}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 12\,u^2 - 32\,v\,u + 8\,v^2 = 12\left(u - \frac{4}{3}\,v\right)^2 - \frac{40}{3}\,v^2$$

v bode, $\left[x = \dfrac{1}{3}, y = \dfrac{5}{12} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -3\,u^2 + 8\,v\,u + 8\,v^2 = -3\left(u - \frac{4}{3}\,v \right)^2 + \frac{40}{3}\,v^2$$

$LocalMin = \left[\left[0, \dfrac{1}{2} \right] \right]$, $LocalMax = [\ ]$, $Saddle = \left[\left[\dfrac{-4}{3}, \dfrac{-5}{6} \right], \left[\dfrac{1}{3}, \dfrac{5}{12} \right] \right]$

line :=

"PMMAT2|171779|Kusák, Roman |zk|ESF B-EKM POH [sem 2]"

                    zadani pro, "Kusák, Roman   ", 171779

Najdete lokalni extremy a sedlove body funkce -5*x^2+9*y^2+12*x^3-3*x^2*y-9*y^3

funkce, $-5\,x^2 + 9\,y^2 + 12\,x^3 - 3\,x^2\,y - 9\,y^3$, *má gradient ,*

$$\left[\begin{array}{c} -10\,x + 36\,x^2 - 6\,x\,y \\ 18\,y - 3\,x^2 - 27\,y^2 \end{array} \right], \textit{ ten je nulový v bodech,}$$

$$\left[[x = 0, y = 0], \left[x = 0, y = \frac{2}{3} \right], \left[x = \frac{7}{25}, y = \frac{1}{75} \right], \left[x = \frac{5}{13}, y = \frac{25}{39} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial,*

$$(u, v) \rightarrow -10\,u^2 + 18\,v^2 = -10\,u^2 + 18\,v^2$$

v bode, $\left[x = 0, y = \dfrac{2}{3} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -14\,u^2 - 18\,v^2 = -14\,u^2 - 18\,v^2$$

v bode, $\left[x = \dfrac{7}{25}, y = \dfrac{1}{75} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow \frac{252}{25}\,u^2 - \frac{84}{25}\,v\,u + \frac{432}{25}\,v^2 = \frac{252}{25}\left(u - \frac{1}{6}\,v \right)^2 + 17\,v^2$$

v bode, $\left[x = \dfrac{5}{13}, y = \dfrac{25}{39} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow \frac{180}{13}\,u^2 - \frac{60}{13}\,v\,u - \frac{216}{13}\,v^2 = \frac{180}{13}\left(u - \frac{1}{6}\,v \right)^2 - 17\,v^2$$

$LocalMin = \left[\left[\dfrac{7}{25}, \dfrac{1}{75} \right] \right]$, $LocalMax = \left[\left[0, \dfrac{2}{3} \right] \right]$, $Saddle = \left[[0, 0], \left[\dfrac{5}{13}, \dfrac{25}{39} \right] \right]$

line := "PMMAT2|172078|Lízalová, Eva |zk|ESF B-HPS RRS [sem 2

                  zadani pro, "Lízalová, Eva   ", 172078

Najdete lokalni extremy a sedlove body funkce 4-11*x^2+12*y^2+16*x^3+5*y^3

funkce, $4 - 11\,x^2 + 12\,y^2 + 16\,x^3 + 5\,y^3$, *má gradient*, $\begin{bmatrix} -22\,x + 48\,x^2 \\ 24\,y + 15\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\; [x = 0, y = 0],\; \left[x = 0, y = \frac{-8}{5} \right],\; \left[x = \frac{11}{24}, y = 0 \right],\; \left[x = \frac{11}{24}, y = \frac{-8}{5} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow -22\,u^2 + 24\,v^2 = -22\,u^2 + 24\,v^2$$

v bode, $\left[x = 0, y = \frac{-8}{5} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -22\,u^2 - 24\,v^2 = -22\,u^2 - 24\,v^2$$

v bode, $\left[x = \frac{11}{24}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22\,u^2 + 24\,v^2 = 22\,u^2 + 24\,v^2$$

v bode, $\left[x = \frac{11}{24}, y = \frac{-8}{5} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22\,u^2 - 24\,v^2 = 22\,u^2 - 24\,v^2$$

$$LocalMin = \left[\left[\frac{11}{24}, 0 \right] \right],\; LocalMax = \left[\left[0, \frac{-8}{5} \right] \right],\; Saddle = \left[[0, 0], \left[\frac{11}{24}, \frac{-8}{5} \right] \right]$$

line := "PMMAT2|174665|Lorenc, Jan |zk|ESF M-EKM POH [sem 2]"

zadani pro, "Lorenc, Jan   ", 174665

Najdete lokalni extremy a sedlove body funkce 5*x+4*x^2-10*y^2-7*x^3+9*y^3

funkce, $5\,x + 4\,x^2 - 10\,y^2 - 7\,x^3 + 9\,y^3$, *má gradient*, $\begin{bmatrix} 5 + 8\,x - 21\,x^2 \\ -20\,y + 27\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{-1}{3}, y = 0 \right],\; \left[x = \frac{5}{7}, y = 0 \right],\; \left[x = \frac{-1}{3}, y = \frac{20}{27} \right],\; \left[x = \frac{5}{7}, y = \frac{20}{27} \right] \right]$$

v bode, $\left[x = \frac{-1}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22\,u^2 - 20\,v^2 = 22\,u^2 - 20\,v^2$$

v bode, $\left[x = \frac{5}{7}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -22\,u^2 - 20\,v^2 = -22\,u^2 - 20\,v^2$$

v bode, $\left[x = \frac{-1}{3}, y = \frac{20}{27} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22\,u^2 + 20\,v^2 = 22\,u^2 + 20\,v^2$$

$v\ bode,\left[x=\dfrac{5}{7},y=\dfrac{20}{27}\right],je\ druhy\ diferencial,$

$(u,v)\to -22\,u^2+20\,v^2=-22\,u^2+20\,v^2$

$LocalMin=\left[\left[\dfrac{-1}{3},\dfrac{20}{27}\right]\right],LocalMax=\left[\left[\dfrac{5}{7},0\right]\right],Saddle=\left[\left[\dfrac{-1}{3},0\right],\left[\dfrac{5}{7},\dfrac{20}{27}\right]\right]$

$line:=$ "PMMAT2| 99655|Malík, David |zk|ESF M-EKM POH [sem 6

$zadani\ pro,$ "Malík, David   ", 99655

Najdete lokalni extremy a sedlove body funkce 13+15*x^2+16*y^2+10*x^3-y^3

$funkce,\ 13+15\,x^2+16\,y^2+10\,x^3-y^3,m\acute{a}\ gradient,\begin{bmatrix}30\,x+30\,x^2\\32\,y-3\,y^2\end{bmatrix},$

$ten\ je\ nulov\acute{y}\ v\ bodech,$

$\left[[x=0,y=0],\left[x=0,y=\dfrac{32}{3}\right],[x=-1,y=0],\left[x=-1,y=\dfrac{32}{3}\right]\right]$

$v\ bode,[x=0,y=0],je\ druhy\ diferencial,$

$(u,v)\to 30\,u^2+32\,v^2=30\,u^2+32\,v^2$

$v\ bode,\left[x=0,y=\dfrac{32}{3}\right],je\ druhy\ diferencial,$

$(u,v)\to 30\,u^2-32\,v^2=30\,u^2-32\,v^2$

$v\ bode,[x=-1,y=0],je\ druhy\ diferencial,$

$(u,v)\to -30\,u^2+32\,v^2=-30\,u^2+32\,v^2$

$v\ bode,\left[x=-1,y=\dfrac{32}{3}\right],je\ druhy\ diferencial,$

$(u,v)\to -30\,u^2-32\,v^2=-30\,u^2-32\,v^2$

$LocalMin=[[0,0]],LocalMax=\left[\left[-1,\dfrac{32}{3}\right]\right],Saddle=\left[\left[0,\dfrac{32}{3}\right],[-1,0]\right]$

$line:=$ "PMMAT2|137128|Markusík, David |zk|ESF M-HPS FP [sem 4]"

$zadani\ pro,$ "Markusík, David   ", 137128

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+6*y^2-8*x^3+3*x*y^2+5*y^3

$funkce,\ -9+3\,x^2+6\,y^2-8\,x^3+3\,x\,y^2+5\,y^3,m\acute{a}\ gradient,$

$\begin{bmatrix}6\,x-24\,x^2+3\,y^2\\12\,y+6\,x\,y+15\,y^2\end{bmatrix},ten\ je\ nulov\acute{y}\ v\ bodech,$

$\left[[x=0,y=0],\left[x=\dfrac{1}{4},y=0\right],\left[x=\dfrac{-8}{49},y=\dfrac{-36}{49}\right],\left[x=\dfrac{1}{2},y=-1\right]\right]$

$v\ bode,[x=0,y=0],je\ druhy\ diferencial,$

$(u,v)\to 6\,u^2+12\,v^2=6\,u^2+12\,v^2$

$v\ bode,\left[x=\dfrac{1}{4}, y=0\right], je\ druhy\ diferencial,$

$$(u,v) \rightarrow -6\,u^2 + \frac{27}{2}\,v^2 = -6\,u^2 + \frac{27}{2}\,v^2$$

$v\ bode,\left[x=\dfrac{-8}{49}, y=\dfrac{-36}{49}\right], je\ druhy\ diferencial,$

$$(u,v) \rightarrow \frac{678}{49}\,u^2 - \frac{432}{49}\,v\,u - \frac{540}{49}\,v^2 = \frac{678}{49}\left(u - \frac{36}{113}\,v\right)^2 - \frac{1404}{113}\,v^2$$

$v\ bode,\left[x=\dfrac{1}{2}, y=-1\right], je\ druhy\ diferencial,$

$$(u,v) \rightarrow -18\,u^2 - 12\,v\,u - 15\,v^2 = -18\left(u + \frac{1}{3}\,v\right)^2 - 13\,v^2$$

$LocalMin = [\,[0,0]\,],\ LocalMax = \left[\left[\dfrac{1}{2}, -1\right]\right],\ Saddle = \left[\left[\dfrac{1}{4}, 0\right], \left[\dfrac{-8}{49}, \dfrac{-36}{49}\right]\right]$

$line := $ "PMMAT2|100118|Miklas, David |zk|ESF B-HPS FP [sem 6

$zadani\ pro,$ "Miklas, David   ", 100118

Najdete lokalni extremy a sedlove body funkce 11+10*x^2+9*x*y+5*y^2+17*x^3+17*x^2*y

$funkce,\ 11 + 10\,x^2 + 9\,x\,y + 5\,y^2 + 17\,x^3 + 17\,x^2\,y,\ má\ gradient,$

$$\left[\begin{matrix} 20\,x + 9\,y + 51\,x^2 + 34\,x\,y \\ 9\,x + 10\,y + 17\,x^2 \end{matrix}\right], ten\ je\ nulový\ v\ bodech,$$

$$\left[[x=0, y=0], \left[x=\frac{-7}{17}, y=\frac{7}{85}\right], \left[x=\frac{1}{2}, y=\frac{-7}{8}\right]\right]$$

$v\ bode,\ [x=0, y=0], je\ druhy\ diferencial,$

$$(u,v) \rightarrow 20\,u^2 + 18\,v\,u + 10\,v^2 = 20\left(u + \frac{9}{20}\,v\right)^2 + \frac{119}{20}\,v^2$$

$v\ bode,\left[x=\dfrac{-7}{17}, y=\dfrac{7}{85}\right], je\ druhy\ diferencial,$

$$(u,v) \rightarrow -\frac{96}{5}\,u^2 - 10\,v\,u + 10\,v^2 = -\frac{96}{5}\left(u + \frac{25}{96}\,v\right)^2 + \frac{1085}{96}\,v^2$$

$v\ bode,\left[x=\dfrac{1}{2}, y=\dfrac{-7}{8}\right], je\ druhy\ diferencial,$

$$(u,v) \rightarrow \frac{165}{4}\,u^2 + 52\,v\,u + 10\,v^2 = \frac{165}{4}\left(u + \frac{104}{165}\,v\right)^2 - \frac{1054}{165}\,v^2$$

$LocalMin = [\,[0,0]\,],\ LocalMax = [\ ],\ Saddle = \left[\left[\dfrac{-7}{17}, \dfrac{7}{85}\right], \left[\dfrac{1}{2}, \dfrac{-7}{8}\right]\right]$

$line := $

"PMMAT2|137816|Mlynka, Jaroslav |zk|ESF M-HPS HOSP [sem 4]"

Najdete lokalni extremy a sedlove body funkce 1-9*x^2-8*x*y+15*x^3+2*x*y^2

funkce, $1 - 9x^2 - 8xy + 15x^3 + 2xy^2$, *má gradient*,

$$\begin{bmatrix} -18x - 8y + 45x^2 + 2y^2 \\ -8x + 4xy \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[\, [x = 0, y = 0],\, [x = 0, y = 4],\, \left[x = \frac{-4}{15}, y = 2\right],\, \left[x = \frac{2}{3}, y = 2\right]\,\right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18u^2 - 16vu = -18\left(u + \frac{4}{9}v\right)^2 + \frac{32}{9}v^2$$

v bode, $[x = 0, y = 4]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18u^2 + 16vu = -18\left(u - \frac{4}{9}v\right)^2 + \frac{32}{9}v^2$$

v bode, $\left[x = \frac{-4}{15}, y = 2\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -42u^2 - \frac{16}{15}v^2 = -42u^2 - \frac{16}{15}v^2$$

v bode, $\left[x = \frac{2}{3}, y = 2\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 42u^2 + \frac{8}{3}v^2 = 42u^2 + \frac{8}{3}v^2$$

$LocalMin = \left[\left[\frac{2}{3}, 2\right]\right], LocalMax = \left[\left[\frac{-4}{15}, 2\right]\right], Saddle = [[0, 0], [0, 4]]$

line :=

"PMMAT2|107842|Navrkal, Ondøej |zk|ESF M-EKM POH [sem 2]"

Najdete lokalni extremy a sedlove body funkce 5+10*x^2+10*x*y+12*y^2+4*x^3+6*x^2*y

funkce, $5 + 10x^2 + 10xy + 12y^2 + 4x^3 + 6x^2y$, *má gradient*,

$$\begin{bmatrix} 20x + 10y + 12x^2 + 12xy \\ 10x + 24y + 6x^2 \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[\, [x = 0, y = 0],\, \left[x = \frac{-5}{3}, y = 0\right],\, \left[x = \frac{19}{6}, y = \frac{-551}{144}\right]\,\right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 20u^2 + 20vu + 24v^2 = 20\left(u + \frac{1}{2}v\right)^2 + 19v^2$$

$v\ bode,\ \left[\ x=\dfrac{-5}{3},\ y=0\ \right],\ je\ druhy\ diferencial,$

$$(u,\ v)\rightarrow -20\ u^2-20\ v\ u+24\ v^2=-20\left(u+\dfrac{1}{2}\ v\right)^2+29\ v^2$$

$v\ bode,\ \left[\ x=\dfrac{19}{6},\ y=\dfrac{-551}{144}\ \right],\ je\ druhy\ diferencial,$

$$(u,\ v)\rightarrow \dfrac{601}{12}\ u^2+96\ v\ u+24\ v^2=\dfrac{601}{12}\left(u+\dfrac{576}{601}\ v\right)^2-\dfrac{13224}{601}\ v^2$$

$LocalMin=[\,[\,0,\,0]\,],\ LocalMax=[\ \ ],\ Saddle=\left[\left[\dfrac{-5}{3},\ 0\right],\left[\dfrac{19}{6},\dfrac{-551}{144}\right]\right]$

$line :=$

Najdete lokalni extremy a sedlove body funkce 5+15*x+8*x*y-11*x^3-x^2*y-9*x^3*y

$funkce,\ 5+15\ x+8\ x\ y-11\ x^3-x^2\ y-9\ x^3\ y,\ má\ gradient,$

$$\left[\begin{array}{c}15+8\ y-33\ x^2-2\ x\ y-27\ x^2\ y\\ 8\ x-x^2-9\ x^3\end{array}\right],\ ten\ je\ nulový\ v\ bodech,$$

$$\left[\left[\ x=0,\ y=\dfrac{-15}{8}\right],\left[\ x=-1,\ y=\dfrac{-18}{17}\right],\left[\ x=\dfrac{8}{9},\ y=\dfrac{-299}{408}\right]\right]$$

$v\ bode,\ \left[\ x=0,\ y=\dfrac{-15}{8}\right],\ je\ druhy\ diferencial,$

$$(u,\ v)\rightarrow \dfrac{15}{4}\ u^2+16\ v\ u=\dfrac{15}{4}\left(u+\dfrac{32}{15}\ v\right)^2-\dfrac{256}{15}\ v^2$$

$v\ bode,\ \left[\ x=-1,\ y=\dfrac{-18}{17}\right],\ je\ druhy\ diferencial,$

$$(u,\ v)\rightarrow \dfrac{186}{17}\ u^2-34\ v\ u=\dfrac{186}{17}\left(u-\dfrac{289}{186}\ v\right)^2-\dfrac{4913}{186}\ v^2$$

$v\ bode,\ \left[\ x=\dfrac{8}{9},\ y=\dfrac{-299}{408}\right],\ je\ druhy\ diferencial,$

$$(u,\ v)\rightarrow -\dfrac{4493}{204}\ u^2-\dfrac{272}{9}\ v\ u=-\dfrac{4493}{204}\left(u+\dfrac{9248}{13479}\ v\right)^2+\dfrac{1257728}{121311}\ v^2$$

$LocalMin=[\ \ ],\ LocalMax=[\ \ ],\ Saddle=\left[\left[0,\dfrac{-15}{8}\right],\left[-1,\dfrac{-18}{17}\right],\left[\dfrac{8}{9},\dfrac{-299}{408}\right]\right]$

$line :=$

Najdete lokalni extremy a sedlove body funkce 5+10*x^2+10*x*y+12*y^2+4*x^3+6*x^2*y

funkce, $5 + 10\,x^2 + 10\,x\,y + 12\,y^2 + 4\,x^3 + 6\,x^2\,y$, *má gradient*,

$$\begin{bmatrix} 20\,x + 10\,y + 12\,x^2 + 12\,x\,y \\ 10\,x + 24\,y + 6\,x^2 \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[\, [x = 0,\, y = 0],\, \left[x = \frac{-5}{3},\, y = 0 \right],\, \left[x = \frac{19}{6},\, y = \frac{-551}{144} \right] \right]$$

v bode, $[x = 0,\, y = 0]$, *je druhy diferencial*,

$$(u,\, v) \to 20\,u^2 + 20\,v\,u + 24\,v^2 = 20\left(u + \frac{1}{2}\,v \right)^2 + 19\,v^2$$

v bode, $\left[x = \dfrac{-5}{3},\, y = 0 \right]$, *je druhy diferencial*,

$$(u,\, v) \to -20\,u^2 - 20\,v\,u + 24\,v^2 = -20\left(u + \frac{1}{2}\,v \right)^2 + 29\,v^2$$

v bode, $\left[x = \dfrac{19}{6},\, y = \dfrac{-551}{144} \right]$, *je druhy diferencial*,

$$(u,\, v) \to \frac{601}{12}\,u^2 + 96\,v\,u + 24\,v^2 = \frac{601}{12}\left(u + \frac{576}{601}\,v \right)^2 - \frac{13224}{601}\,v^2$$

$LocalMin = [\,[0,\,0]\,],\ LocalMax = [\ ],\ Saddle = \left[\left[\dfrac{-5}{3},\, 0 \right], \left[\dfrac{19}{6},\, \dfrac{-551}{144} \right] \right]$

line :=

zadani pro , "Ohnheisrová, Iveta   ", 174734

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5\,x^2 - 8\,y^2 + 11\,x^3 - 3\,y^3$, *má gradient*, $\begin{bmatrix} 10\,x + 33\,x^2 \\ -16\,y - 9\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\, [x = 0,\, y = 0],\, \left[x = 0,\, y = \frac{-16}{9} \right],\, \left[x = \frac{-10}{33},\, y = 0 \right],\, \left[x = \frac{-10}{33},\, y = \frac{-16}{9} \right] \right]$$

v bode, $[x = 0,\, y = 0]$, *je druhy diferencial*,

$$(u,\, v) \to 10\,u^2 - 16\,v^2 = 10\,u^2 - 16\,v^2$$

v bode, $\left[x = 0,\, y = \dfrac{-16}{9} \right]$, *je druhy diferencial*,

$$(u,\, v) \to 10\,u^2 + 16\,v^2 = 10\,u^2 + 16\,v^2$$

v bode, $\left[x = \dfrac{-10}{33},\, y = 0 \right]$, *je druhy diferencial*,

$$(u,\, v) \to -10\,u^2 - 16\,v^2 = -10\,u^2 - 16\,v^2$$

$v\ bode,\left[x=\dfrac{-10}{33},y=\dfrac{-16}{9}\right],je\ druhy\ diferencial\,,$

$(u,v)\rightarrow-10\,u^2+16\,v^2=-10\,u^2+16\,v^2$

$LocalMin=\left[\left[0,\dfrac{-16}{9}\right]\right],LocalMax=\left[\left[\dfrac{-10}{33},0\right]\right],$

$Saddle=\left[[0,0],\left[\dfrac{-10}{33},\dfrac{-16}{9}\right]\right]$

$line:=$ "PMMAT2|172037|Petroviè, Martin |zk|ESF B-EKM POH [sem 2]"

$zadani\ pro\,,$ "Petroviè, Martin   ", 172037

Najdete lokalni extremy a sedlove body funkce 16+4*x-8*x^2+10*x*y+6*x*y^2

$funkce,\ 16+4\,x-8\,x^2+10\,x\,y+6\,x\,y^2,\ má\ gradient\,,$

$\begin{bmatrix}4-16\,x+10\,y+6\,y^2\\10\,x+12\,x\,y\end{bmatrix},ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=\dfrac{-1}{96},y=\dfrac{-5}{6}\right],[x=0,y=-1],\left[x=0,y=\dfrac{-2}{3}\right]\right]$

$v\ bode,\left[x=\dfrac{-1}{96},y=\dfrac{-5}{6}\right],je\ druhy\ diferencial\,,$

$(u,v)\rightarrow-16\,u^2-\dfrac{1}{8}\,v^2=-16\,u^2-\dfrac{1}{8}\,v^2$

$v\ bode,\ [x=0,y=-1],je\ druhy\ diferencial\,,$

$(u,v)\rightarrow-16\,u^2-4\,v\,u=-16\left(u+\dfrac{1}{8}\,v\right)^2+\dfrac{1}{4}\,v^2$

$v\ bode,\left[x=0,y=\dfrac{-2}{3}\right],je\ druhy\ diferencial\,,$

$(u,v)\rightarrow-16\,u^2+4\,v\,u=-16\left(u-\dfrac{1}{8}\,v\right)^2+\dfrac{1}{4}\,v^2$

$LocalMin=[\ \ ],LocalMax=\left[\left[\dfrac{-1}{96}\ \dfrac{-5}{6}\right]\right],Saddle=\left[[0,-1],\left[0,\dfrac{-2}{3}\right]\right]$

$line:=$ "PMMAT2| 99620|Petøík, Martin |zk|ESF M-HPS FP [sem 4$]$

$zadani\ pro\,,$ "Petøík, Martin   ", 99620

Najdete lokalni extremy a sedlove body funkce -8*y+6*y^2+12*x^2*y-10*x^4

$funkce,\ -8\,y+6\,y^2+12\,x^2\,y-10\,x^4,\ má\ gradient\,,\begin{bmatrix}24\,x\,y-40\,x^3\\-8+12\,y+12\,x^2\end{bmatrix},$

$ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=0,y=\dfrac{2}{3}\right],\left[x=\dfrac{1}{2},y=\dfrac{5}{12}\right],\left[x=\dfrac{-1}{2},y=\dfrac{5}{12}\right]\right]$

$v\ bode,\left[x=0,y=\dfrac{2}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow 16\,u^2+12\,v^2=16\,u^2+12\,v^2$$

$v\ bode,\left[x=\dfrac{1}{2},y=\dfrac{5}{12}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow-20\,u^2+24\,v\,u+12\,v^2=-20\left(u-\dfrac{3}{5}\,v\right)^2+\dfrac{96}{5}\,v^2$$

$v\ bode,\left[x=\dfrac{-1}{2},y=\dfrac{5}{12}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow-20\,u^2-24\,v\,u+12\,v^2=-20\left(u+\dfrac{3}{5}\,v\right)^2+\dfrac{96}{5}\,v^2$$

$LocalMin=\left[\left[0,\dfrac{2}{3}\right]\right],LocalMax=[\ ],Saddle=\left[\left[\dfrac{1}{2},\dfrac{5}{12}\right],\left[\dfrac{-1}{2},\dfrac{5}{12}\right]\right]$

$line:=$

"PMMAT2|171888|Podhradský, Juraj |zk|ESF B-EKM POH [sem 2]"

$zadani\ pro$, "Podhradský, Juraj   ", 171888

Najdete lokalni extremy a sedlove body funkce -3*x+3*x^2-7*y^2+15*x^3+7*y^3

$funkce,-3\,x+3\,x^2-7\,y^2+15\,x^3+7\,y^3,má\ gradient,\begin{bmatrix}-3+6\,x+45\,x^2\\-14\,y+21\,y^2\end{bmatrix},$

$ten\ je\ nulový\ v\ bodech,$

$$\left[\left[x=\dfrac{-1}{3},y=0\right],\left[x=\dfrac{1}{5},y=0\right],\left[x=\dfrac{-1}{3},y=\dfrac{2}{3}\right],\left[x=\dfrac{1}{5},y=\dfrac{2}{3}\right]\right]$$

$v\ bode,\left[x=\dfrac{-1}{3},y=0\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow-24\,u^2-14\,v^2=-24\,u^2-14\,v^2$$

$v\ bode,\left[x=\dfrac{1}{5},y=0\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow24\,u^2-14\,v^2=24\,u^2-14\,v^2$$

$v\ bode,\left[x=\dfrac{-1}{3},y=\dfrac{2}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow-24\,u^2+14\,v^2=-24\,u^2+14\,v^2$$

$v\ bode,\left[x=\dfrac{1}{5},y=\dfrac{2}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\rightarrow24\,u^2+14\,v^2=24\,u^2+14\,v^2$$

$LocalMin=\left[\left[\dfrac{1}{5},\dfrac{2}{3}\right]\right],LocalMax=\left[\left[\dfrac{-1}{3},0\right]\right],Saddle=\left[\left[\dfrac{1}{5},0\right],\left[\dfrac{-1}{3},\dfrac{2}{3}\right]\right]$

"PMMAT2|170290|Pokorný, Franti¹ek |zk|ESF M-EKM POH [sem 2]"

zadani pro, "Pokorný, Franti¹ek   ", 170290

Najdete lokalni extremy a sedlove body funkce -3*x+3*x^2-7*y^2+15*x^3+7*y^3

funkce, $-3\,x + 3\,x^2 - 7\,y^2 + 15\,x^3 + 7\,y^3$, *má gradient*, $\begin{bmatrix} -3 + 6\,x + 45\,x^2 \\ -14\,y + 21\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{-1}{3}, y = 0\right], \left[x = \frac{1}{5}, y = 0\right], \left[x = \frac{-1}{3}, y = \frac{2}{3}\right], \left[x = \frac{1}{5}, y = \frac{2}{3}\right]\right]$$

v bode, $\left[x = \frac{-1}{3}, y = 0\right]$, *je druhy diferencial*,

$(u, v) \rightarrow -24\,u^2 - 14\,v^2 = -24\,u^2 - 14\,v^2$

v bode, $\left[x = \frac{1}{5}, y = 0\right]$, *je druhy diferencial*,

$(u, v) \rightarrow 24\,u^2 - 14\,v^2 = 24\,u^2 - 14\,v^2$

v bode, $\left[x = \frac{-1}{3}, y = \frac{2}{3}\right]$, *je druhy diferencial*,

$(u, v) \rightarrow -24\,u^2 + 14\,v^2 = -24\,u^2 + 14\,v^2$

v bode, $\left[x = \frac{1}{5}, y = \frac{2}{3}\right]$, *je druhy diferencial*,

$(u, v) \rightarrow 24\,u^2 + 14\,v^2 = 24\,u^2 + 14\,v^2$

$LocalMin = \left[\left[\frac{1}{5}, \frac{2}{3}\right]\right], LocalMax = \left[\left[\frac{-1}{3}, 0\right]\right], Saddle = \left[\left[\frac{1}{5}, 0\right], \left[\frac{-1}{3}, \frac{2}{3}\right]\right]$

line := "PMMAT2|134691|Potoèková, Zuzana |zk|ESF M-HPS FP [sem 2]

zadani pro, "Potoèková, Zuzana   ", 134691

Najdete lokalni extremy a sedlove body funkce 4+3*x+11*y^2-9*x^3+12*y^3

funkce, $4 + 3\,x + 11\,y^2 - 9\,x^3 + 12\,y^3$, *má gradient*, $\begin{bmatrix} 3 - 27\,x^2 \\ 22\,y + 36\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{1}{3}, y = 0\right], \left[x = \frac{-1}{3}, y = 0\right], \left[x = \frac{1}{3}, y = \frac{-11}{18}\right], \left[x = \frac{-1}{3}, y = \frac{-11}{18}\right]\right]$$

v bode, $\left[x = \frac{1}{3}, y = 0\right]$, *je druhy diferencial*,

$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$

v bode, $\left[x = \frac{-1}{3}, y = 0\right]$, *je druhy diferencial*,

$(u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$

$v\ bode,\ \left[x=\dfrac{1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial,$

$(u,v)\rightarrow-18\,u^2-22\,v^2=-18\,u^2-22\,v^2$

$v\ bode,\ \left[x=\dfrac{-1}{3},y=\dfrac{-11}{18}\right],je\ druhy\ diferencial,$

$(u,v)\rightarrow18\,u^2-22\,v^2=18\,u^2-22\,v^2$

$LocalMin=\left[\left[\dfrac{-1}{3},0\right]\right],LocalMax=\left[\left[\dfrac{1}{3},\dfrac{-11}{18}\right]\right],$

$Saddle=\left[\left[\dfrac{1}{3},0\right],\left[\dfrac{-1}{3},\dfrac{-11}{18}\right]\right]$

$line:=$ "PMMAT2|174793|Primová, Andrea |zk|ESF M-EKT EKON [s̀ em 2]"

$zadani\ pro,$ "Primová, Andrea   ", 174793

Najdete lokalni extremy a sedlove body funkce 5+15*x+8*x*y-11*x^3-x^2*y-9*x^3*y

$funkce,\ 5+15\,x+8\,x\,y-11\,x^3-x^2\,y-9\,x^3\,y,\ má\ gradient,$

$\left[\begin{matrix}15+8\,y-33\,x^2-2\,x\,y-27\,x^2\,y\\8\,x-x^2-9\,x^3\end{matrix}\right],ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=0,y=\dfrac{-15}{8}\right],\left[x=-1,y=\dfrac{-18}{17}\right],\left[x=\dfrac{8}{9},y=\dfrac{-299}{408}\right]\right]$

$v\ bode,\ \left[x=0,y=\dfrac{-15}{8}\right],je\ druhy\ diferencial,$

$(u,v)\rightarrow\dfrac{15}{4}\,u^2+16\,v\,u=\dfrac{15}{4}\left(u+\dfrac{32}{15}\,v\right)^2-\dfrac{256}{15}\,v^2$

$v\ bode,\ \left[x=-1,y=\dfrac{-18}{17}\right],je\ druhy\ diferencial,$

$(u,v)\rightarrow\dfrac{186}{17}\,u^2-34\,v\,u=\dfrac{186}{17}\left(u-\dfrac{289}{186}\,v\right)^2-\dfrac{4913}{186}\,v^2$

$v\ bode,\ \left[x=\dfrac{8}{9},y=\dfrac{-299}{408}\right],je\ druhy\ diferencial,$

$(u,v)\rightarrow-\dfrac{4493}{204}\,u^2-\dfrac{272}{9}\,v\,u=-\dfrac{4493}{204}\left(u+\dfrac{9248}{13479}\,v\right)^2+\dfrac{1257728}{121311}\,v^2$

$LocalMin=[\ \ ],LocalMax=[\ \ ],Saddle=\left[\left[0,\dfrac{-15}{8}\right],\left[-1,\dfrac{-18}{17}\right],\left[\dfrac{8}{9},\dfrac{-299}{408}\right]\right]$

$line:=$

"PMMAT2|171836|Prodìlalová, Linda |zk|ESF B-HPS VEK [sem 2]"

$zadani\ pro,$ "Prodìlalová, Linda   ", 171836

Najdete lokalni extremy a sedlove body funkce -8*y+6*y^2+12*x^2*y-10*x^4

funkce, $-8\,y + 6\,y^2 + 12\,x^2\,y - 10\,x^4$, *má gradient*, $\begin{bmatrix} 24\,x\,y - 40\,x^3 \\ -8 + 12\,y + 12\,x^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = 0, y = \frac{2}{3}\right], \left[x = \frac{1}{2}, y = \frac{5}{12}\right], \left[x = \frac{-1}{2}, y = \frac{5}{12}\right]\right]$$

v bode, $\left[x = 0, y = \frac{2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 16\,u^2 + 12\,v^2 = 16\,u^2 + 12\,v^2$$

v bode, $\left[x = \frac{1}{2}, y = \frac{5}{12}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -20\,u^2 + 24\,v\,u + 12\,v^2 = -20\left(u - \frac{3}{5}\,v\right)^2 + \frac{96}{5}\,v^2$$

v bode, $\left[x = \frac{-1}{2}, y = \frac{5}{12}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -20\,u^2 - 24\,v\,u + 12\,v^2 = -20\left(u + \frac{3}{5}\,v\right)^2 + \frac{96}{5}\,v^2$$

$LocalMin = \left[\left[0, \frac{2}{3}\right]\right]$, $LocalMax = [\ ]$, $Saddle = \left[\left[\frac{1}{2}, \frac{5}{12}\right], \left[\frac{-1}{2}, \frac{5}{12}\right]\right]$

line := "PMMAT2|171818|Rojko, Andrej |zk|ESF B-EKM POH [sem 2]"

zadani pro, "Rojko, Andrej   ", 171818

Najdete lokalni extremy a sedlove body funkce 2+12*y-6*x^2+15*y^2-8*x^3+4*y^3

funkce, $2 + 12\,y - 6\,x^2 + 15\,y^2 - 8\,x^3 + 4\,y^3$, *má gradient*,

$\begin{bmatrix} -12\,x - 24\,x^2 \\ 12 + 30\,y + 12\,y^2 \end{bmatrix}$, *ten je nulový v bodech*,

$$\left[[x = 0, y = -2], \left[x = 0, y = \frac{-1}{2}\right], \left[x = \frac{-1}{2}, y = -2\right], \left[x = \frac{-1}{2}, y = \frac{-1}{2}\right]\right]$$

v bode, $[x = 0, y = -2]$, *je druhy diferencial*,

$$(u, v) \rightarrow -12\,u^2 - 18\,v^2 = -12\,u^2 - 18\,v^2$$

v bode, $\left[x = 0, y = \frac{-1}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -12\,u^2 + 18\,v^2 = -12\,u^2 + 18\,v^2$$

v bode, $\left[x = \frac{-1}{2}, y = -2\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 12\,u^2 - 18\,v^2 = 12\,u^2 - 18\,v^2$$

v bode, $\left[x = \frac{-1}{2}, y = \frac{-1}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 12\,u^2 + 18\,v^2 = 12\,u^2 + 18\,v^2$$

$LocalMin = \left[\left[\dfrac{-1}{2}, \dfrac{-1}{2}\right]\right], LocalMax = [[0, -2]], Saddle = \left[\left[0, \dfrac{-1}{2}\right], \left[\dfrac{-1}{2}, -2\right]\right]$

Najdete lokalni extremy a sedlove body funkce 11+10*x^2+9*x*y+5*y^2+17*x^3+17*x^2*y

funkce, $11 + 10 x^2 + 9 x y + 5 y^2 + 17 x^3 + 17 x^2 y$, *má gradient*,

$\begin{bmatrix} 20 x + 9 y + 51 x^2 + 34 x y \\ 9 x + 10 y + 17 x^2 \end{bmatrix}$, *ten je nulový v bodech*,

$\left[[x = 0, y = 0], \left[x = \dfrac{-7}{17}, y = \dfrac{7}{85}\right], \left[x = \dfrac{1}{2}, y = \dfrac{-7}{8}\right]\right]$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 20 u^2 + 18 v u + 10 v^2 = 20\left(u + \dfrac{9}{20} v\right)^2 + \dfrac{119}{20} v^2$$

v bode, $\left[x = \dfrac{-7}{17}, y = \dfrac{7}{85}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -\dfrac{96}{5} u^2 - 10 v u + 10 v^2 = -\dfrac{96}{5}\left(u + \dfrac{25}{96} v\right)^2 + \dfrac{1085}{96} v^2$$

v bode, $\left[x = \dfrac{1}{2}, y = \dfrac{-7}{8}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow \dfrac{165}{4} u^2 + 52 v u + 10 v^2 = \dfrac{165}{4}\left(u + \dfrac{104}{165} v\right)^2 - \dfrac{1054}{165} v^2$$

$LocalMin = [[0, 0]], LocalMax = [\ ], Saddle = \left[\left[\dfrac{-7}{17}, \dfrac{7}{85}\right], \left[\dfrac{1}{2}, \dfrac{-7}{8}\right]\right]$

Najdete lokalni extremy a sedlove body funkce 17-6*y+4*x^2-11*y^2-10*x^3-4*y^3

funkce, $17 - 6 y + 4 x^2 - 11 y^2 - 10 x^3 - 4 y^3$, *má gradient*,

$\begin{bmatrix} 8 x - 30 x^2 \\ -6 - 22 y - 12 y^2 \end{bmatrix}$, *ten je nulový v bodech*,

$\left[\left[x = 0, y = \dfrac{-3}{2}\right], \left[x = 0, y = \dfrac{-1}{3}\right], \left[x = \dfrac{4}{15}, y = \dfrac{-3}{2}\right], \left[x = \dfrac{4}{15}, y = \dfrac{-1}{3}\right]\right]$

v bode, $\left[x = 0, y = \dfrac{-3}{2}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 8 u^2 + 14 v^2 = 8 u^2 + 14 v^2$$

v bode, $\left[x = 0, y = \dfrac{-1}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 8 u^2 - 14 v^2 = 8 u^2 - 14 v^2$$

$v\ bode,\left[x=\dfrac{4}{15},y=\dfrac{-3}{2}\right],je\ druhy\ diferencial,$

$$(u,v)\to-8\,u^2+14\,v^2=-8\,u^2+14\,v^2$$

$v\ bode,\left[x=\dfrac{4}{15},y=\dfrac{-1}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\to-8\,u^2-14\,v^2=-8\,u^2-14\,v^2$$

$$LocalMin=\left[\left[0,\dfrac{-3}{2}\right]\right],LocalMax=\left[\left[\dfrac{4}{15},\dfrac{-1}{3}\right]\right],$$

$$Saddle=\left[\left[0,\dfrac{-1}{3}\right],\left[\dfrac{4}{15},\dfrac{-3}{2}\right]\right]$$

Najdete lokalni extremy a sedlove body funkce 17-6*y+4*x^2-11*y^2-10*x^3-4*y^3

$funkce,\ 17-6\,y+4\,x^2-11\,y^2-10\,x^3-4\,y^3,\ má\ gradient,$

$$\left[\begin{array}{c}8\,x-30\,x^2\\-6-22\,y-12\,y^2\end{array}\right],ten\ je\ nulový\ v\ bodech,$$

$$\left[\left[x=0,y=\dfrac{-3}{2}\right],\left[x=0,y=\dfrac{-1}{3}\right],\left[x=\dfrac{4}{15},y=\dfrac{-3}{2}\right],\left[x=\dfrac{4}{15},y=\dfrac{-1}{3}\right]\right]$$

$v\ bode,\left[x=0,y=\dfrac{-3}{2}\right],je\ druhy\ diferencial,$

$$(u,v)\to8\,u^2+14\,v^2=8\,u^2+14\,v^2$$

$v\ bode,\left[x=0,y=\dfrac{-1}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\to8\,u^2-14\,v^2=8\,u^2-14\,v^2$$

$v\ bode,\left[x=\dfrac{4}{15},y=\dfrac{-3}{2}\right],je\ druhy\ diferencial,$

$$(u,v)\to-8\,u^2+14\,v^2=-8\,u^2+14\,v^2$$

$v\ bode,\left[x=\dfrac{4}{15},y=\dfrac{-1}{3}\right],je\ druhy\ diferencial,$

$$(u,v)\to-8\,u^2-14\,v^2=-8\,u^2-14\,v^2$$

$$LocalMin=\left[\left[0,\dfrac{-3}{2}\right]\right],LocalMax=\left[\left[\dfrac{4}{15},\dfrac{-1}{3}\right]\right],$$

$$Saddle=\left[\left[0,\dfrac{-1}{3}\right],\left[\dfrac{4}{15},\dfrac{-3}{2}\right]\right]$$

Najdete lokalni extremy a sedlove body funkce 13*x^2+9*x*y+9*x^3+13*x^4-x^3*y

funkce, $13\,x^2 + 9\,x\,y + 9\,x^3 + 13\,x^4 - x^3\,y$, *má gradient*,

$$\begin{bmatrix} 26\,x + 9\,y + 27\,x^2 + 52\,x^3 - 3\,x^2\,y \\ 9\,x - x^3 \end{bmatrix}, \textit{ten je nulový v bodech,}$$

$$\left[[x = 0, y = 0], \left[x = 3, y = \frac{575}{6} \right], \left[x = \text{-}3, y = \frac{\text{-}413}{6} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \to 26\,u^2 + 18\,v\,u = 26 \left(u + \frac{9}{26}\,v \right)^2 - \frac{81}{26}\,v^2$$

v bode, $\left[x = 3, y = \dfrac{575}{6} \right]$, *je druhy diferencial*,

$$(u, v) \to -133\,u^2 - 36\,v\,u = -133 \left(u + \frac{18}{133}\,v \right)^2 + \frac{324}{133}\,v^2$$

v bode, $\left[x = \text{-}3, y = \dfrac{\text{-}413}{6} \right]$, *je druhy diferencial*,

$$(u, v) \to 29\,u^2 - 36\,v\,u = 29 \left(u - \frac{18}{29}\,v \right)^2 - \frac{324}{29}\,v^2$$

$$LocalMin = [\ ],\ LocalMax = [\ ],\ Saddle = \left[[0, 0], \left[3, \frac{575}{6} \right], \left[\text{-}3, \frac{\text{-}413}{6} \right] \right]$$

line := "PMMAT2|172095|Steiger, Zdenìk |zk|ESF B-EKM POH [sem 2]"

zadani pro, "Steiger, Zdenìk   ", 172095

Najdete lokalni extremy a sedlove body funkce 11+16*x+2*x*y-7*x^3-11*x^2*y-6*x^3*y

funkce, $11 + 16\,x + 2\,x\,y - 7\,x^3 - 11\,x^2\,y - 6\,x^3\,y$, *má gradient*,

$$\begin{bmatrix} 16 + 2\,y - 21\,x^2 - 22\,x\,y - 18\,x^2\,y \\ 2\,x - 11\,x^2 - 6\,x^3 \end{bmatrix}, \textit{ten je nulový v bodech,}$$

$$\left[[x = 0, y = \text{-}8], \left[x = \text{-}2, y = \frac{\text{-}34}{13} \right], \left[x = \frac{1}{6}, y = \frac{185}{26} \right] \right]$$

v bode, $[x = 0, y = \text{-}8]$, *je druhy diferencial*,

$$(u, v) \to 176\,u^2 + 4\,v\,u = 176 \left(u + \frac{1}{88}\,v \right)^2 - \frac{1}{44}\,v^2$$

v bode, $\left[x = \text{-}2, y = \dfrac{\text{-}34}{13} \right]$, *je druhy diferencial*,

$$(u, v) \to -\frac{608}{13}\,u^2 - 52\,v\,u = -\frac{608}{13} \left(u + \frac{169}{304}\,v \right)^2 + \frac{2197}{152}\,v^2$$

v bode, $\left[x = \dfrac{1}{6}, y = \dfrac{185}{26} \right]$, *je druhy diferencial,*

$$(u, v) \rightarrow -\frac{2681}{13} u^2 - \frac{13}{3} v u = -\frac{2681}{13} \left(u + \frac{169}{16086} v \right)^2 + \frac{2197}{96516} v^2$$

LocalMin $= [\ ]$, *LocalMax* $= [\ ]$, *Saddle* $= \left[[0, \text{-}8], \left[\text{-}2, \dfrac{\text{-}34}{13} \right], \left[\dfrac{1}{6}, \dfrac{185}{26} \right] \right]$

line := "PMMAT2|174905|Stratil, Martin |zk|ESF M-EKT EKON [sem 2

zadani pro, "Stratil, Martin   ", 174905

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

funkce, $-4 + 16 y - 9 x^2 + 13 y^2 - 7 x^3 + y^3$, *má gradient,* $\begin{bmatrix} -18 x - 21 x^2 \\ 16 + 26 y + 3 y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = \text{-}8], \left[x = 0, y = \frac{\text{-}2}{3} \right], \left[x = \frac{\text{-}6}{7}, y = \text{-}8 \right], \left[x = \frac{\text{-}6}{7}, y = \frac{\text{-}2}{3} \right] \right]$$

v bode, $[x = 0, y = \text{-}8]$, *je druhy diferencial,*

$$(u, v) \rightarrow -18 u^2 - 22 v^2 = -18 u^2 - 22 v^2$$

v bode, $\left[x = 0, y = \dfrac{\text{-}2}{3} \right]$, *je druhy diferencial,*

$$(u, v) \rightarrow -18 u^2 + 22 v^2 = -18 u^2 + 22 v^2$$

v bode, $\left[x = \dfrac{\text{-}6}{7}, y = \text{-}8 \right]$, *je druhy diferencial,*

$$(u, v) \rightarrow 18 u^2 - 22 v^2 = 18 u^2 - 22 v^2$$

v bode, $\left[x = \dfrac{\text{-}6}{7}, y = \dfrac{\text{-}2}{3} \right]$, *je druhy diferencial,*

$$(u, v) \rightarrow 18 u^2 + 22 v^2 = 18 u^2 + 22 v^2$$

LocalMin $= \left[\left[\dfrac{\text{-}6}{7}, \dfrac{\text{-}2}{3} \right] \right]$, *LocalMax* $= [[0, \text{-}8]]$, *Saddle* $= \left[\left[0, \dfrac{\text{-}2}{3} \right], \left[\dfrac{\text{-}6}{7}, \text{-}8 \right] \right]$

line := "PMMAT2|174905|Stratil, Martin |zk|ESF M-HPS HOSP [sem 2

zadani pro, "Stratil, Martin   ", 174905

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

funkce, $-4 + 16 y - 9 x^2 + 13 y^2 - 7 x^3 + y^3$, *má gradient,* $\begin{bmatrix} -18 x - 21 x^2 \\ 16 + 26 y + 3 y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = \text{-}8], \left[x = 0, y = \frac{\text{-}2}{3} \right], \left[x = \frac{\text{-}6}{7}, y = \text{-}8 \right], \left[x = \frac{\text{-}6}{7}, y = \frac{\text{-}2}{3} \right] \right]$$

v bode, $[x = 0, y = -8]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = -8\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$$

$$LocalMin = \left[\left[\dfrac{-6}{7}, \dfrac{-2}{3}\right]\right], LocalMax = [[0, -8]], Saddle = \left[\left[0, \dfrac{-2}{3}\right], \left[\dfrac{-6}{7}, -8\right]\right]$$

line :=

zadani pro, "Svobodová, Veronika ", 172083

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

funkce, $-4 + 16\,y - 9\,x^2 + 13\,y^2 - 7\,x^3 + y^3$, *má gradient*, $\begin{bmatrix} -18\,x - 21\,x^2 \\ 16 + 26\,y + 3\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = -8], \left[x = 0, y = \dfrac{-2}{3}\right], \left[x = \dfrac{-6}{7}, y = -8\right], \left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3}\right]\right]$$

v bode, $[x = 0, y = -8]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = -8\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$$

$$LocalMin = \left[\left[\dfrac{-6}{7}, \dfrac{-2}{3}\right]\right], LocalMax = [[0, -8]], Saddle = \left[\left[0, \dfrac{-2}{3}\right], \left[\dfrac{-6}{7}, -8\right]\right]$$

Najdete lokalni extremy a sedlove body funkce -8+8*x^2+17*y^2+7*x^3-9*y^3

funkce, $-8 + 8\,x^2 + 17\,y^2 + 7\,x^3 - 9\,y^3$, *má gradient*, $\begin{bmatrix} 16\,x + 21\,x^2 \\ 34\,y - 27\,y^2 \end{bmatrix}$,

   ten je nulový v bodech,

$$\left[\, [x = 0, y = 0], \left[x = 0, y = \frac{34}{27} \right], \left[x = \frac{-16}{21}, y = 0 \right], \left[x = \frac{-16}{21}, y = \frac{34}{27} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

   $(u, v) \rightarrow 16\,u^2 + 34\,v^2 = 16\,u^2 + 34\,v^2$

v bode, $\left[x = 0, y = \frac{34}{27} \right]$, *je druhy diferencial*,

   $(u, v) \rightarrow 16\,u^2 - 34\,v^2 = 16\,u^2 - 34\,v^2$

v bode, $\left[x = \frac{-16}{21}, y = 0 \right]$, *je druhy diferencial*,

   $(u, v) \rightarrow -16\,u^2 + 34\,v^2 = -16\,u^2 + 34\,v^2$

v bode, $\left[x = \frac{-16}{21}, y = \frac{34}{27} \right]$, *je druhy diferencial*,

   $(u, v) \rightarrow -16\,u^2 - 34\,v^2 = -16\,u^2 - 34\,v^2$

$LocalMin = [\,[\,0, 0\,]\,]$, $LocalMax = \left[\left[\frac{-16}{21}, \frac{34}{27} \right] \right]$,

   $Saddle = \left[\left[0, \frac{34}{27} \right], \left[\frac{-16}{21}, 0 \right] \right]$

line :=

   "PMMAT2| 99492|©amlová, Markéta |zk|ESF M-HPS RRS [sem 6]"

Najdete lokalni extremy a sedlove body funkce -6+5*x^2-8*y^2+11*x^3-3*y^3

funkce, $-6 + 5\,x^2 - 8\,y^2 + 11\,x^3 - 3\,y^3$, *má gradient*, $\begin{bmatrix} 10\,x + 33\,x^2 \\ -16\,y - 9\,y^2 \end{bmatrix}$,

   ten je nulový v bodech,

$$\left[\, [x = 0, y = 0], \left[x = 0, y = \frac{-16}{9} \right], \left[x = \frac{-10}{33}, y = 0 \right], \left[x = \frac{-10}{33}, y = \frac{-16}{9} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

   $(u, v) \rightarrow 10\,u^2 - 16\,v^2 = 10\,u^2 - 16\,v^2$

v bode, $\left[x = 0, y = \frac{-16}{9} \right]$, *je druhy diferencial*,

   $(u, v) \rightarrow 10\,u^2 + 16\,v^2 = 10\,u^2 + 16\,v^2$

$v\ bode,\ \left[x=\dfrac{-10}{33},y=0\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow -10\,u^2-16\,v^2=-10\,u^2-16\,v^2$

$v\ bode,\ \left[x=\dfrac{-10}{33},y=\dfrac{-16}{9}\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow -10\,u^2+16\,v^2=-10\,u^2+16\,v^2$

$LocalMin=\left[\left[0,\dfrac{-16}{9}\right]\right],LocalMax=\left[\left[\dfrac{-10}{33},0\right]\right],$

$Saddle=\left[\,[0,0],\left[\dfrac{-10}{33},\dfrac{-16}{9}\right]\right]$

$line:=$

"PMMAT2|172194|©auerová, Ludmila |zk|ESF B-EKM POH [sem 2]"

$zadani\ pro,$ "©auerová, Ludmila   ", 172194

Najdete lokalni extremy a sedlove body funkce -3*x+3*x^2-7*y^2+15*x^3+7*y^3

$funkce,\ -3\,x+3\,x^2-7\,y^2+15\,x^3+7\,y^3,\ má\ gradient,\ \begin{bmatrix}-3+6\,x+45\,x^2\\-14\,y+21\,y^2\end{bmatrix},$

$ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=\dfrac{-1}{3},y=0\right],\left[x=\dfrac{1}{5},y=0\right],\left[x=\dfrac{-1}{3},y=\dfrac{2}{3}\right],\left[x=\dfrac{1}{5},y=\dfrac{2}{3}\right]\right]$

$v\ bode,\ \left[x=\dfrac{-1}{3},y=0\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow -24\,u^2-14\,v^2=-24\,u^2-14\,v^2$

$v\ bode,\ \left[x=\dfrac{1}{5},y=0\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow 24\,u^2-14\,v^2=24\,u^2-14\,v^2$

$v\ bode,\ \left[x=\dfrac{-1}{3},y=\dfrac{2}{3}\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow -24\,u^2+14\,v^2=-24\,u^2+14\,v^2$

$v\ bode,\ \left[x=\dfrac{1}{5},y=\dfrac{2}{3}\right],je\ druhy\ diferencial\ ,$

$(u,v)\rightarrow 24\,u^2+14\,v^2=24\,u^2+14\,v^2$

$LocalMin=\left[\left[\dfrac{1}{5},\dfrac{2}{3}\right]\right],LocalMax=\left[\left[\dfrac{-1}{3},0\right]\right],Saddle=\left[\left[\dfrac{1}{5},0\right],\left[\dfrac{-1}{3},\dfrac{2}{3}\right]\right]$

$line:=$ "PMMAT2|172149|©erý, Martin |zk|ESF B-HPS FP [sem 2]"

$zadani\ pro,$ "©erý, Martin   ", 172149

Najdete lokalni extremy a sedlove body funkce 5*x+4*x^2-10*y^2-7*x^3+9*y^3

funkce, $5x + 4x^2 - 10y^2 - 7x^3 + 9y^3$, *má gradient*, $\begin{bmatrix} 5 + 8x - 21x^2 \\ -20y + 27y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{-1}{3}, y = 0\right], \left[x = \frac{5}{7}, y = 0\right], \left[x = \frac{-1}{3}, y = \frac{20}{27}\right], \left[x = \frac{5}{7}, y = \frac{20}{27}\right]\right]$$

v bode, $\left[x = \frac{-1}{3}, y = 0\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22u^2 - 20v^2 = 22u^2 - 20v^2$$

v bode, $\left[x = \frac{5}{7}, y = 0\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -22u^2 - 20v^2 = -22u^2 - 20v^2$$

v bode, $\left[x = \frac{-1}{3}, y = \frac{20}{27}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 22u^2 + 20v^2 = 22u^2 + 20v^2$$

v bode, $\left[x = \frac{5}{7}, y = \frac{20}{27}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -22u^2 + 20v^2 = -22u^2 + 20v^2$$

$LocalMin = \left[\left[\frac{-1}{3}, \frac{20}{27}\right]\right]$, $LocalMax = \left[\left[\frac{5}{7}, 0\right]\right]$, $Saddle = \left[\left[\frac{-1}{3}, 0\right], \left[\frac{5}{7}, \frac{20}{27}\right]\right]$

line :=

"PMMAT2|170179|©mídová, Lucie |zk|ESF M-EKM POH [sem 2]"

zadani pro , "©mídová, Lucie   ", 170179

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

funkce, $-4 + 16y - 9x^2 + 13y^2 - 7x^3 + y^3$, *má gradient*, $\begin{bmatrix} -18x - 21x^2 \\ 16 + 26y + 3y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = -8], \left[x = 0, y = \frac{-2}{3}\right], \left[x = \frac{-6}{7}, y = -8\right], \left[x = \frac{-6}{7}, y = \frac{-2}{3}\right]\right]$$

v bode, $[x = 0, y = -8]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18u^2 - 22v^2 = -18u^2 - 22v^2$$

v bode, $\left[x = 0, y = \frac{-2}{3}\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18u^2 + 22v^2 = -18u^2 + 22v^2$$

v bode, $\left[x = \frac{-6}{7}, y = -8\right]$, *je druhy diferencial*,

$$(u, v) \rightarrow 18u^2 - 22v^2 = 18u^2 - 22v^2$$

$v\ bode,\left[x=\dfrac{-6}{7},y=\dfrac{-2}{3}\right],je\ druhy\ diferencial,$

$\qquad (u,v)\to 18\,u^2+22\,v^2=18\,u^2+22\,v^2$

$LocalMin=\left[\left[\dfrac{-6}{7},\dfrac{-2}{3}\right]\right],LocalMax=[\,[\,0,\,-8\,]\,],Saddle=\left[\left[0,\dfrac{-2}{3}\right],\left[\dfrac{-6}{7},-8\right]\right]$

Najdete lokalni extremy a sedlove body funkce 5*x+4*x^2-10*y^2-7*x^3+9*y^3

$funkce,\ 5\,x+4\,x^2-10\,y^2-7\,x^3+9\,y^3,\ má\ gradient,\left[\begin{array}{c}5+8\,x-21\,x^2\\-20\,y+27\,y^2\end{array}\right],$

$\qquad ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=\dfrac{-1}{3},y=0\right],\left[x=\dfrac{5}{7},y=0\right],\left[x=\dfrac{-1}{3},y=\dfrac{20}{27}\right],\left[x=\dfrac{5}{7},y=\dfrac{20}{27}\right]\right]$

$v\ bode,\left[x=\dfrac{-1}{3},y=0\right],je\ druhy\ diferencial,$

$\qquad (u,v)\to 22\,u^2-20\,v^2=22\,u^2-20\,v^2$

$v\ bode,\left[x=\dfrac{5}{7},y=0\right],je\ druhy\ diferencial,$

$\qquad (u,v)\to -22\,u^2-20\,v^2=-22\,u^2-20\,v^2$

$v\ bode,\left[x=\dfrac{-1}{3},y=\dfrac{20}{27}\right],je\ druhy\ diferencial,$

$\qquad (u,v)\to 22\,u^2+20\,v^2=22\,u^2+20\,v^2$

$v\ bode,\left[x=\dfrac{5}{7},y=\dfrac{20}{27}\right],je\ druhy\ diferencial,$

$\qquad (u,v)\to -22\,u^2+20\,v^2=-22\,u^2+20\,v^2$

$LocalMin=\left[\left[\dfrac{-1}{3},\dfrac{20}{27}\right]\right],LocalMax=\left[\left[\dfrac{5}{7},0\right]\right],Saddle=\left[\left[\dfrac{-1}{3},0\right],\left[\dfrac{5}{7},\dfrac{20}{27}\right]\right]$

Najdete lokalni extremy a sedlove body funkce 17-6*y+4*x^2-11*y^2-10*x^3-4*y^3

$funkce,\ 17-6\,y+4\,x^2-11\,y^2-10\,x^3-4\,y^3,\ má\ gradient,$

$\left[\begin{array}{c}8\,x-30\,x^2\\-6-22\,y-12\,y^2\end{array}\right],ten\ je\ nulový\ v\ bodech,$

$\left[\left[x=0,y=\dfrac{-3}{2}\right],\left[x=0,y=\dfrac{-1}{3}\right],\left[x=\dfrac{4}{15},y=\dfrac{-3}{2}\right],\left[x=\dfrac{4}{15},y=\dfrac{-1}{3}\right]\right]$

v bode, $\left[x = 0, y = \dfrac{-3}{2} \right]$, *je druhy diferencial,*

$$(u, v) \to 8\,u^2 + 14\,v^2 = 8\,u^2 + 14\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-1}{3} \right]$, *je druhy diferencial,*

$$(u, v) \to 8\,u^2 - 14\,v^2 = 8\,u^2 - 14\,v^2$$

v bode, $\left[x = \dfrac{4}{15}, y = \dfrac{-3}{2} \right]$, *je druhy diferencial,*

$$(u, v) \to -8\,u^2 + 14\,v^2 = -8\,u^2 + 14\,v^2$$

v bode, $\left[x = \dfrac{4}{15}, y = \dfrac{-1}{3} \right]$, *je druhy diferencial,*

$$(u, v) \to -8\,u^2 - 14\,v^2 = -8\,u^2 - 14\,v^2$$

$LocalMin = \left[\left[0, \dfrac{-3}{2} \right] \right], LocalMax = \left[\left[\dfrac{4}{15}, \dfrac{-1}{3} \right] \right],$

$Saddle = \left[\left[0, \dfrac{-1}{3} \right], \left[\dfrac{4}{15}, \dfrac{-3}{2} \right] \right]$

line :=

zadani pro, "Tomková, Hana   ", 172008

Najdete lokalni extremy a sedlove body funkce 13-11*x^2+14*y^2+5*x^3+6*y^3

funkce, $13 - 11\,x^2 + 14\,y^2 + 5\,x^3 + 6\,y^3$, *má gradient,* $\begin{bmatrix} -22\,x + 15\,x^2 \\ 28\,y + 18\,y^2 \end{bmatrix}$,

ten je nulový v bodech,

$$\left[[x = 0, y = 0], \left[x = 0, y = \dfrac{-14}{9} \right], \left[x = \dfrac{22}{15}, y = 0 \right], \left[x = \dfrac{22}{15}, y = \dfrac{-14}{9} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial,*

$$(u, v) \to -22\,u^2 + 28\,v^2 = -22\,u^2 + 28\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-14}{9} \right]$, *je druhy diferencial,*

$$(u, v) \to -22\,u^2 - 28\,v^2 = -22\,u^2 - 28\,v^2$$

v bode, $\left[x = \dfrac{22}{15}, y = 0 \right]$, *je druhy diferencial,*

$$(u, v) \to 22\,u^2 + 28\,v^2 = 22\,u^2 + 28\,v^2$$

v bode, $\left[x = \dfrac{22}{15}, y = \dfrac{-14}{9} \right]$, *je druhy diferencial,*

$$(u, v) \to 22\,u^2 - 28\,v^2 = 22\,u^2 - 28\,v^2$$

$$LocalMin = \left[\left[\frac{22}{15}, 0 \right] \right], LocalMax = \left[\left[0, \frac{-14}{9} \right] \right],$$

$$Saddle = \left[[0, 0], \left[\frac{22}{15}, \frac{-14}{9} \right] \right]$$

line :=

zadani pro , "Turcsányi, Richard   ", 171930

Najdete lokalni extremy a sedlove body funkce -10-9*y-9*x^2+11*y^2-9*x^3-x^4

funkce, $-10 - 9y - 9x^2 + 11y^2 - 9x^3 - x^4$, *má gradient ,*

$$\begin{bmatrix} -18x - 27x^2 - 4x^3 \\ -9 + 22y \end{bmatrix}, \textit{ten je nulový v bodech,}$$

$$\left[\left[x = 0, y = \frac{9}{22} \right], \left[x = -6, y = \frac{9}{22} \right], \left[x = \frac{-3}{4}, y = \frac{9}{22} \right] \right]$$

v bode, $\left[x = 0, y = \frac{9}{22} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -18u^2 + 22v^2 = -18u^2 + 22v^2$$

v bode, $\left[x = -6, y = \frac{9}{22} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -126u^2 + 22v^2 = -126u^2 + 22v^2$$

v bode, $\left[x = \frac{-3}{4}, y = \frac{9}{22} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow \frac{63}{4}u^2 + 22v^2 = \frac{63}{4}u^2 + 22v^2$$

$$LocalMin = \left[\left[\frac{-3}{4}, \frac{9}{22} \right] \right], LocalMax = [\ ], Saddle = \left[\left[0, \frac{9}{22} \right], \left[-6, \frac{9}{22} \right] \right]$$

line :=

zadani pro, "Turková, Lenka   ", 171975

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+2*y^2+x^3+15*y^3

funkce, $-9 + 3x^2 + 2y^2 + x^3 + 15y^3$, *má gradient ,* $\begin{bmatrix} 6x + 3x^2 \\ 4y + 45y^2 \end{bmatrix}$,

ten je nulový v bodech ,

$$\left[[x = 0, y = 0], \left[x = 0, y = \frac{-4}{45} \right], [x = -2, y = 0], \left[x = -2, y = \frac{-4}{45} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial ,*

$$(u, v) \rightarrow 6u^2 + 4v^2 = 6u^2 + 4v^2$$

$v\ bode,\ \left[x=0,\ y=\dfrac{-4}{45}\right],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to 6\,u^2-4\,v^2=6\,u^2-4\,v^2$

$v\ bode,\ [x=-2,\ y=0],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to -6\,u^2+4\,v^2=-6\,u^2+4\,v^2$

$v\ bode,\ \left[x=-2,\ y=\dfrac{-4}{45}\right],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to -6\,u^2-4\,v^2=-6\,u^2-4\,v^2$

$LocalMin=[[0,0]],\ LocalMax=\left[\left[-2,\dfrac{-4}{45}\right]\right],\ Saddle=\left[\left[0,\dfrac{-4}{45}\right],[-2,0]\right]$

$line:=$ "PMMAT2| 65353|Valentová, Jitka |zk|ESF M-HPS VEK [sem 4]"

$\qquad\qquad zadani\ pro,$ "Valentová, Jitka   ", 65353

Najdete lokalni extremy a sedlove body funkce -2+3*x^2+6*y^2+7*x^3-9*x^2*y-7*y^3

$funkce,\ -2+3\,x^2+6\,y^2+7\,x^3-9\,x^2\,y-7\,y^3,\ má\ gradient,$

$\begin{bmatrix}6\,x+21\,x^2-18\,x\,y\\ 12\,y-9\,x^2-21\,y^2\end{bmatrix},\ ten\ je\ nulový\ v\ bodech,$

$\left[[x=0,y=0],\left[x=0,y=\dfrac{4}{7}\right],\left[x=\dfrac{-10}{41},y=\dfrac{2}{41}\right],\left[x=\dfrac{2}{11},y=\dfrac{6}{11}\right]\right]$

$v\ bode,\ [x=0,y=0],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to 6\,u^2+12\,v^2=6\,u^2+12\,v^2$

$v\ bode,\ \left[x=0,y=\dfrac{4}{7}\right],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to -\dfrac{30}{7}\,u^2-12\,v^2=-\dfrac{30}{7}\,u^2-12\,v^2$

$v\ bode,\ \left[x=\dfrac{-10}{41},y=\dfrac{2}{41}\right],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to -\dfrac{210}{41}\,u^2+\dfrac{360}{41}\,v\,u+\dfrac{408}{41}\,v^2=-\dfrac{210}{41}\left(u-\dfrac{6}{7}\,v\right)^2+\dfrac{96}{7}\,v^2$

$v\ bode,\ \left[x=\dfrac{2}{11},y=\dfrac{6}{11}\right],\ je\ druhy\ diferencial,$

$\qquad (u,v)\to \dfrac{42}{11}\,u^2-\dfrac{72}{11}\,v\,u-\dfrac{120}{11}\,v^2=\dfrac{42}{11}\left(u-\dfrac{6}{7}\,v\right)^2-\dfrac{96}{7}\,v^2$

$LocalMin=[[0,0]],\ LocalMax=\left[\left[0,\dfrac{4}{7}\right]\right],\ Saddle=\left[\left[\dfrac{-10}{41},\dfrac{2}{41}\right],\left[\dfrac{2}{11},\dfrac{6}{11}\right]\right]$

$line:=$

$\qquad$ "PMMAT2|171857|Valentová, Lenka |zk|ESF B-EKM POH [sem 2]"

$\qquad\qquad zadani\ pro,$ "Valentová, Lenka   ", 171857

Najdete lokalni extremy a sedlove body funkce 11+16*x+2*x*y-7*x^3-11*x^2*y-6*x^3*y

funkce, $11 + 16 x + 2 x y - 7 x^3 - 11 x^2 y - 6 x^3 y$, *má gradient*,

$$\begin{bmatrix} 16 + 2 y - 21 x^2 - 22 x y - 18 x^2 y \\ 2 x - 11 x^2 - 6 x^3 \end{bmatrix}, \text{ten je nulový v bodech,}$$

$$\left[[x = 0, y = \text{-}8], \left[x = \text{-}2, y = \frac{\text{-}34}{13} \right], \left[x = \frac{1}{6}, y = \frac{185}{26} \right] \right]$$

v bode, $[x = 0, y = \text{-}8]$, *je druhy diferencial*,

$$(u, v) \to 176 u^2 + 4 v u = 176 \left(u + \frac{1}{88} v \right)^2 - \frac{1}{44} v^2$$

v bode, $\left[x = \text{-}2, y = \frac{\text{-}34}{13} \right]$, *je druhy diferencial*,

$$(u, v) \to -\frac{608}{13} u^2 - 52 v u = -\frac{608}{13} \left(u + \frac{169}{304} v \right)^2 + \frac{2197}{152} v^2$$

v bode, $\left[x = \frac{1}{6}, y = \frac{185}{26} \right]$, *je druhy diferencial*,

$$(u, v) \to -\frac{2681}{13} u^2 - \frac{13}{3} v u = -\frac{2681}{13} \left(u + \frac{169}{16086} v \right)^2 + \frac{2197}{96516} v^2$$

$LocalMin = [\ ], LocalMax = [\ ], Saddle = \left[[0, \text{-}8], \left[\text{-}2, \frac{\text{-}34}{13} \right], \left[\frac{1}{6}, \frac{185}{26} \right] \right]$

$line := \text{"PMMAT2|174790|Váòa, Vladislav} \qquad |zk|ESF M-HPS FP [sem 2$

$\qquad\qquad zadani\ pro, \text{"Váòa, Vladislav} \qquad \text{", } 174790$

Najdete lokalni extremy a sedlove body funkce 3*x-11*x^2+16*x*y+13*x*y^2

funkce, $3 x - 11 x^2 + 16 x y + 13 x y^2$, *má gradient*, $\begin{bmatrix} 3 - 22 x + 16 y + 13 y^2 \\ 16 x + 26 x y \end{bmatrix}$,

ten je nulový v bodech,

$$\left[\left[x = \frac{\text{-}25}{286}, y = \frac{\text{-}8}{13} \right], [x = 0, y = \text{-}1], \left[x = 0, y = \frac{\text{-}3}{13} \right] \right]$$

v bode, $\left[x = \frac{\text{-}25}{286}, y = \frac{\text{-}8}{13} \right]$, *je druhy diferencial*,

$$(u, v) \to -22 u^2 - \frac{25}{11} v^2 = -22 u^2 - \frac{25}{11} v^2$$

v bode, $[x = 0, y = \text{-}1]$, *je druhy diferencial*,

$$(u, v) \to -22 u^2 - 20 v u = -22 \left(u + \frac{5}{11} v \right)^2 + \frac{50}{11} v^2$$

v bode, $\left[x = 0, y = \dfrac{-3}{13} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -22\,u^2 + 20\,v\,u = -22 \left(u - \frac{5}{11}\,v \right)^2 + \frac{50}{11}\,v^2$$

$LocalMin = [\ ]$, $LocalMax = \left[\left[\dfrac{-25}{286}\ \dfrac{-8}{13} \right] \right]$, $Saddle = \left[[0,\, \text{-1}],\ \left[0,\, \dfrac{-3}{13} \right] \right]$

line :=

"PMMAT2|174973|Vdovec, Milan |zk|ESF M-EKM POH [sem 2]"

zadani pro, "Vdovec, Milan   ,'' 174973

Najdete lokalni extremy a sedlove body funkce -4+16*y-9*x^2+13*y^2-7*x^3+y^3

funkce, $-4 + 16\,y - 9\,x^2 + 13\,y^2 - 7\,x^3 + y^3$, *má gradient,* $\begin{bmatrix} -18\,x - 21\,x^2 \\ 16 + 26\,y + 3\,y^2 \end{bmatrix}$,

ten je nulový v bodech ,

$$\left[[x = 0, y = \text{-8}],\ \left[x = 0, y = \frac{-2}{3} \right],\ \left[x = \frac{-6}{7}, y = \text{-8} \right],\ \left[x = \frac{-6}{7}, y = \frac{-2}{3} \right] \right]$$

v bode, $[x = 0, y = \text{-8}]$, *je druhy diferencial,*

$$(u, v) \rightarrow -18\,u^2 - 22\,v^2 = -18\,u^2 - 22\,v^2$$

v bode, $\left[x = 0, y = \dfrac{-2}{3} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = \text{-8} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow 18\,u^2 - 22\,v^2 = 18\,u^2 - 22\,v^2$$

v bode, $\left[x = \dfrac{-6}{7}, y = \dfrac{-2}{3} \right]$, *je druhy diferencial ,*

$$(u, v) \rightarrow 18\,u^2 + 22\,v^2 = 18\,u^2 + 22\,v^2$$

$LocalMin = \left[\left[\dfrac{-6}{7}, \dfrac{-2}{3} \right] \right]$, $LocalMax = [\, [0,\, \text{-8}]\,]$, $Saddle = \left[\left[0, \dfrac{-2}{3} \right], \left[\dfrac{-6}{7}, \text{-8} \right] \right]$

line := "PMMAT2|106541|Vegrichtová, Marta |zk|ESF M-HPS FP [sem 2

zadani pro, "Vegrichtová, Marta   ,' 106541

Najdete lokalni extremy a sedlove body funkce 11-4*y-x^2+4*y^2-3*x^3+6*x^2*y

funkce, $11 - 4\,y - x^2 + 4\,y^2 - 3\,x^3 + 6\,x^2\,y$, *má gradient,*

$\begin{bmatrix} -2\,x - 9\,x^2 + 12\,x\,y \\ -4 + 8\,y + 6\,x^2 \end{bmatrix}$, *ten je nulový v bodech ,*

$$\left[\left[x = 0, y = \frac{1}{2} \right], \left[x = \frac{-4}{3}, y = \frac{-5}{6} \right], \left[x = \frac{1}{3}, y = \frac{5}{12} \right] \right]$$

v *bode*, $\left[x = 0, y = \dfrac{1}{2}\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow 4\,u^2 + 8\,v^2 = 4\,u^2 + 8\,v^2$

v *bode*, $\left[x = \dfrac{-4}{3}, y = \dfrac{-5}{6}\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow 12\,u^2 - 32\,v\,u + 8\,v^2 = 12\left(u - \dfrac{4}{3}\,v\right)^2 - \dfrac{40}{3}\,v^2$

v *bode*, $\left[x = \dfrac{1}{3}, y = \dfrac{5}{12}\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow -3\,u^2 + 8\,v\,u + 8\,v^2 = -3\left(u - \dfrac{4}{3}\,v\right)^2 + \dfrac{40}{3}\,v^2$

$LocalMin = \left[\left[0, \dfrac{1}{2}\right]\right]$, $LocalMax = [\ ]$, $Saddle = \left[\left[\dfrac{-4}{3}, \dfrac{-5}{6}\right], \left[\dfrac{1}{3}, \dfrac{5}{12}\right]\right]$

$line$:= "PMMAT2|171976|Virglová, Lucie |zk|ESF B-EKM POH [sem 2]"

$\qquad\qquad$ *zadani pro*, "Virglová, Lucie   ,"171976

Najdete lokalni extremy a sedlove body funkce 4-11*x^2+12*y^2+16*x^3+5*y^3

funkce, $4 - 11\,x^2 + 12\,y^2 + 16\,x^3 + 5\,y^3$, *má gradient*, $\begin{bmatrix} -22\,x + 48\,x^2 \\ 24\,y + 15\,y^2 \end{bmatrix}$,

$\qquad$ *ten je nulový v bodech*,

$\qquad \left[[x = 0, y = 0], \left[x = 0, y = \dfrac{-8}{5}\right], \left[x = \dfrac{11}{24}, y = 0\right], \left[x = \dfrac{11}{24}, y = \dfrac{-8}{5}\right]\right]$

v *bode*, $[x = 0, y = 0]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow -22\,u^2 + 24\,v^2 = -22\,u^2 + 24\,v^2$

v *bode*, $\left[x = 0, y = \dfrac{-8}{5}\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow -22\,u^2 - 24\,v^2 = -22\,u^2 - 24\,v^2$

v *bode*, $\left[x = \dfrac{11}{24}, y = 0\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow 22\,u^2 + 24\,v^2 = 22\,u^2 + 24\,v^2$

v *bode*, $\left[x = \dfrac{11}{24}, y = \dfrac{-8}{5}\right]$, *je druhy diferencial*,

$\qquad (u, v) \rightarrow 22\,u^2 - 24\,v^2 = 22\,u^2 - 24\,v^2$

$LocalMin = \left[\left[\dfrac{11}{24}, 0\right]\right]$, $LocalMax = \left[\left[0, \dfrac{-8}{5}\right]\right]$, $Saddle = \left[[0, 0], \left[\dfrac{11}{24}, \dfrac{-8}{5}\right]\right]$

$line$:= "PMMAT2|174214|Vojti¹ková, Ludmila |zk|ESF M-EKM POH [s
    em 2]"

Najdete lokalni extremy a sedlove body funkce 16-9*x^2-3*x*y-2*y^2-9*x*y^2-8*y^3

funkce, $16 - 9\,x^2 - 3\,x\,y - 2\,y^2 - 9\,x\,y^2 - 8\,y^3$, *má gradient*,

$$\begin{bmatrix} -18\,x - 3\,y - 9\,y^2 \\ -3\,x - 4\,y - 18\,x\,y - 24\,y^2 \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[[x = 0, y = 0], \left[x = \frac{1}{72}, y = \frac{-1}{6} \right], \left[x = \frac{-28}{9}, y = \frac{7}{3} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 - 6\,v\,u - 4\,v^2 = -18\left(u + \frac{1}{6}\,v \right)^2 - \frac{7}{2}\,v^2$$

v bode, $\left[x = \frac{1}{72}, y = \frac{-1}{6} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 + \frac{15}{4}\,v^2 = -18\,u^2 + \frac{15}{4}\,v^2$$

v bode, $\left[x = \frac{-28}{9}, y = \frac{7}{3} \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -18\,u^2 - 90\,v\,u - 60\,v^2 = -18\left(u + \frac{5}{2}\,v \right)^2 + \frac{105}{2}\,v^2$$

$$\textit{LocalMin} = [\ \ ], \textit{LocalMax} = [[0, 0]], \textit{Saddle} = \left[\left[\frac{1}{72}, \frac{-1}{6} \right], \left[\frac{-28}{9}, \frac{7}{3} \right] \right]$$

line := "PMMAT2|172170|Vravko, Matej |zk|ESF B-HPS RRS [sem 2]"

Najdete lokalni extremy a sedlove body funkce 5+10*x^2+10*x*y+12*y^2+4*x^3+6*x^2*y

funkce, $5 + 10\,x^2 + 10\,x\,y + 12\,y^2 + 4\,x^3 + 6\,x^2\,y$, *má gradient*,

$$\begin{bmatrix} 20\,x + 10\,y + 12\,x^2 + 12\,x\,y \\ 10\,x + 24\,y + 6\,x^2 \end{bmatrix}, \textit{ten je nulový v bodech},$$

$$\left[[x = 0, y = 0], \left[x = \frac{-5}{3}, y = 0 \right], \left[x = \frac{19}{6}, y = \frac{-551}{144} \right] \right]$$

v bode, $[x = 0, y = 0]$, *je druhy diferencial*,

$$(u, v) \rightarrow 20\,u^2 + 20\,v\,u + 24\,v^2 = 20\left(u + \frac{1}{2}\,v \right)^2 + 19\,v^2$$

v bode, $\left[x = \frac{-5}{3}, y = 0 \right]$, *je druhy diferencial*,

$$(u, v) \rightarrow -20\,u^2 - 20\,v\,u + 24\,v^2 = -20\left(u + \frac{1}{2}\,v \right)^2 + 29\,v^2$$

$v\ bode,\left[\ x=\dfrac{19}{6},y=\dfrac{-551}{144}\right],je\ druhy\ diferencial\ ,$

$$(u,v)\rightarrow\frac{601}{12}\,u^2+96\,v\,u+24\,v^2=\frac{601}{12}\left(u+\frac{576}{601}\,v\right)^2-\frac{13224}{601}\,v^2$$

$LocalMin=[\,[\,0,0\,]\,],\ LocalMax=[\ \ ],\ Saddle=\left[\left[\dfrac{-5}{3},0\right],\left[\dfrac{19}{6},\dfrac{-551}{144}\right]\right]$

$line:=\ "PMMAT2|171839|Zlato^1,\ Michal\qquad|zk|ESF\ B\text{-}EKM\ POH\ [sem\ 2$

$\qquad\qquad zadani\ pro,\ "Zlato^1,\ Michal\qquad,"171839$

Najdete lokalni extremy a sedlove body funkce -9+3*x^2+2*y^2+x^3+15*y^3

$funkce,\ -9+3\,x^2+2\,y^2+x^3+15\,y^3,\ m\acute{a}\ gradient,\begin{bmatrix}6\,x+3\,x^2\\4\,y+45\,y^2\end{bmatrix},$

$\qquad ten\ je\ nulov\acute{y}\ v\ bodech,$

$$\left[\ [x=0,y=0],\left[x=0,y=\frac{-4}{45}\right],[x=\text{-}2,y=0],\left[x=\text{-}2,y=\frac{-4}{45}\right]\right]$$

$v\ bode,\ [x=0,y=0],je\ druhy\ diferencial\ ,$

$\qquad(u,v)\rightarrow 6\,u^2+4\,v^2=6\,u^2+4\,v^2$

$v\ bode,\left[x=0,y=\dfrac{-4}{45}\right],je\ druhy\ diferencial\ ,$

$\qquad(u,v)\rightarrow 6\,u^2-4\,v^2=6\,u^2-4\,v^2$

$v\ bode,\ [x=\text{-}2,y=0],je\ druhy\ diferencial\ ,$

$\qquad(u,v)\rightarrow -6\,u^2+4\,v^2=-6\,u^2+4\,v^2$

$v\ bode,\left[x=\text{-}2,y=\dfrac{-4}{45}\right],je\ druhy\ diferencial\ ,$

$\qquad(u,v)\rightarrow -6\,u^2-4\,v^2=-6\,u^2-4\,v^2$

$LocalMin=[\,[\,0,0\,]\,],\ LocalMax=\left[\left[\text{-}2,\dfrac{-4}{45}\right]\right],\ Saddle=\left[\left[0,\dfrac{-4}{45}\right],[\text{-}2,0]\right]$

$line:=\ "PMMAT2|174990|Zubat\acute{y},\ Adam\qquad|zk|ESF\ M\text{-}HPS\ FP\ [sem\ 2]"$

$\qquad\qquad zadani\ pro,\ "Zubat\acute{y},\ Adam\qquad",\ 174990$

Najdete lokalni extremy a sedlove body funkce -10-9*y-9*x^2+11*y^2-9*x^3-x^4

$funkce,\ -10-9\,y-9\,x^2+11\,y^2-9\,x^3-x^4,\ m\acute{a}\ gradient,$

$\begin{bmatrix}-18\,x-27\,x^2-4\,x^3\\-9+22\,y\end{bmatrix},\ ten\ je\ nulov\acute{y}\ v\ bodech,$

$$\left[\left[x=0,y=\frac{9}{22}\right],\left[x=\text{-}6,y=\frac{9}{22}\right],\left[x=\frac{-3}{4},y=\frac{9}{22}\right]\right]$$

v bode, $\left[x = 0, y = \dfrac{9}{22} \right]$, je druhy diferencial,

$$(u, v) \rightarrow -18\,u^2 + 22\,v^2 = -18\,u^2 + 22\,v^2$$

v bode, $\left[x = \text{-6}, y = \dfrac{9}{22} \right]$, je druhy diferencial,

$$(u, v) \rightarrow -126\,u^2 + 22\,v^2 = -126\,u^2 + 22\,v^2$$

v bode, $\left[x = \dfrac{\text{-3}}{4}, y = \dfrac{9}{22} \right]$, je druhy diferencial,

$$(u, v) \rightarrow \dfrac{63}{4}\,u^2 + 22\,v^2 = \dfrac{63}{4}\,u^2 + 22\,v^2$$

$$LocalMin = \left[\left[\dfrac{\text{-3}}{4}, \dfrac{9}{22} \right] \right], LocalMax = [\ ], Saddle = \left[\left[0, \dfrac{9}{22} \right], \left[\text{-6}, \dfrac{9}{22} \right] \right]$$