Test 1

Ex . 6

```
> restart;sd:=0.0028;sm:=.00085;rov1:=sm^2=sd^2/N;solve(rov1)
;
```

$$sd := 0.0028$$

$$sm := 0.00085$$

$$rov1 := 7.225\ 10^{-7} = \frac{0.00000784}{N}$$

$$10.85121107 \qquad \textbf{(1.1.1)}$$

Ex. 10

```
> restart;rov1:=k=A*exp(-EA/R/T);
```

$$rov1 := k = A\ e^{-\frac{EA}{R\,T}} \qquad \textbf{(1.2.1)}$$

```
> rov2:=solve(rov1,EA);
```

$$rov2 := -\ln\left(\frac{k}{A}\right) R\,T \qquad \textbf{(1.2.2)}$$

```
> rov3:=diff(rov2,T);
```

$$rov3 := -\ln\left(\frac{k}{A}\right) R \qquad \textbf{(1.2.3)}$$

```
> rov4:=diff(rov2,k);
```

$$rov4 := -\frac{R\,T}{k} \qquad \textbf{(1.2.4)}$$

```
> A:=1e12; R:=8.314; k:=50000; sk:=1200; T:=250;sT:=1;
```

$$A := 1.\ 10^{12}$$

$$R := 8.314$$

$$k := 50000$$

$$sk := 1200$$

$$T := 250$$

$$sT := 1 \qquad \textbf{(1.2.5)}$$

```
> solve(rov1,EA);
```

$$34942.16822 \qquad \textbf{(1.2.6)}$$

```
> rov5:=sEA^2=rov4^2*sk^2+rov3^2*sT;
```

$$rov5 := sEA^2 = 22023.69538 \qquad \textbf{(1.2.7)}$$

```
> solve(rov5, sEA);
```

$$148.4038254,\ -148.4038254 \qquad \textbf{(1.2.8)}$$

Ex. 9a

```
> restart;rov1:=y=(a+b)/c;
```

$$rov1 := y = \frac{a+b}{c} \tag{1.3.1}$$

```
> a:=7.53;sa:=.05;b:=.898;sb:=.001;c:=5.82;sc:=.4;
```

$$a := 7.53$$
$$sa := 0.05$$
$$b := 0.898$$
$$sb := 0.001$$
$$c := 5.82$$
$$sc := 0.4 \tag{1.3.2}$$

```
> y:=solve(rov1);
```

$$y := 1.448109966 \tag{1.3.3}$$

```
> rov2:=sab^2=sa^2+sb^2;solve(rov2,sab);
```

$$rov2 := sab^2 = 0.002501$$
$$0.05000999900,\ -0.05000999900 \tag{1.3.4}$$

```
> sab:=.050009999;
```

$$sab := 0.050009999 \tag{1.3.5}$$

```
> rov3:=(y/sy)^2=(a*b/sab)^2+(c/sc)^2;
```

$$rov3 := \frac{2.097022474}{sy^2} = 18493.92264 \tag{1.3.6}$$

```
> solve(rov3);
```

$$-0.01064846540,\ 0.01064846540 \tag{1.3.7}$$

Ex. 9b

```
> restart;rov1:=y=(a+b)/c;
```

$$rov1 := y = \frac{a+b}{c} \tag{2.1}$$

```
> rov1a:=solve(rov1,y);
```

$$rov1a := \frac{a+b}{c} \tag{2.2}$$

```
> rov2:=diff(rov1a,a);rov3:=diff(rov1a,b);rov4:=diff(rov1a,c);
```

$$rov2 := \frac{1}{c}$$
$$rov3 := \frac{1}{c}$$
$$rov4 := -\frac{a+b}{c^2} \tag{2.3}$$

```
> rov5:=sy^2=rov2^2*sa^2+rov3^2*sb^2+rov4^2*sc^2;
```

(2.4)

$$rov5 := sy^2 = \frac{sa^2}{c^2} + \frac{sb^2}{c^2} + \frac{(a+b)^2\, sc^2}{c^4} \tag{2.4}$$

```
> a:=7.53;sa:=.05;b:=.898;sb:=.001;c:=5.82;sc:=.4;
```

$$a := 7.53$$
$$sa := 0.05$$
$$b := 0.898$$
$$sb := 0.001$$
$$c := 5.82$$
$$sc := 0.4 \tag{2.5}$$

```
> y:=solve(rov1);
```

$$y := 1.448109966 \tag{2.6}$$

```
> sy:=solve(rov5);
```

$$sy := 0.09989670560,\ -0.09989670560 \tag{2.7}$$

```
>
```