

I. Life at University

1. **Brainstorm any vocabulary connected to your student life, both in and outside university.**

2. **Where can students live in the course of their university studies?**

Suggest at least three possibilities.

In pairs or groups, list advantages and disadvantages of each type of accommodation.

a) b) c).....

+ - + - + -

Now summarize the main advantages in sentences, using suitable linking expressions (if, because, while, as opposed to, ...):

3. **Complete the text about Libor Novák, a student of Masaryk University in Brno.**

Listen to the recording and check the gaps.

options residence challenge specializing entrance course

Hello. My name is Libor Novák and I come from Jeseník, a small town with a population of about 10,000 in the mountains of northern Moravia, but I'm currently living and studying in Brno. I study Chemistry at the Faculty of Science, which is very demanding but I am enjoying the 1)..... I am in the second year of a five-year 2)..... which means that next year I'll be able to start 3)..... by choosing 4)..... in those areas which interest me most.

Before coming here I attended the grammar school in Jeseník where my favourite subjects were Mathematics and Chemistry. On the other hand, I found languages more difficult and had to put in a lot of extra work to pass my school leaving exams.

At the moment I am living in the halls of 5)..... in Komárov although next year I will have to leave and find a place to stay privately since there are not enough rooms for all the students who want them. I share a double room with another student from Jihlava called Radek Kašpar who studies Geology. He would have studied Physics if it had been possible but he didn't get a high enough mark in his 6)..... exams.

4. Pavel Zemánek is a postgraduate student. Prepare questions for him.

- a) Where (to come from)?.....
- b) What (to study, currently)?.....
- c) What (to do research)?.....
- d) Why (to update CV)?
- e) What (like to do)?
- f) Where (to live, currently)?
- g) Who (to share a flat?
- h) Why (to share a flat)?

5. Listen to the recording about Pavel Zemánek and answer the questions above.

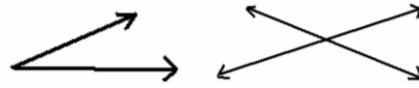
6. EXAM PRACTICE: Ask about the underlined part of the sentence.

- a) This week I'm leaving school at 7:00, so as to be ready with my project till Monday.
.....
- b) This week I'm leaving school at 7:00, so as to be ready with my project till Monday.
.....
- c) He studies at Masaryk University.
- d) He studies at Masaryk University.
.....
- e) He studies at Masaryk University.
.....
- f) Chinese scientists are doing considerable work on medicinal plants.
.....
- g) Chinese scientists are doing considerable work on medicinal plants.
.....
- h) When I finish school I would like to specialize in the field of financial analysis.
.....
- i) When I finish school I would like to specialize in the field of financial analysis.
.....
- j) When I finish school I would like to specialize in the field of financial analysis.
.....

II. Classifying angles and triangles

1. Look at the text and try to complete the missing information.

1) Describe the situations in which angles are formed:



- a)
- b)

2) What is the property of two perfect horizontal and vertical lines crossing each other?

.....

3) Which three types of angles are described by the following properties and where do we use them?

- | | | |
|----------|-------|----------------------------------|
| a) | angle | property: 90° |
| | | use |
| b) | angle | property: less than 90° |
| | | use |
| c) | angle | property: $91^\circ - 180^\circ$ |
| | | use |

Now listen to and watch the video, check your answers and then reply to these more specific questions: <http://www.youtube.com/watch?v=MVLxXcfNWfE>

- 1) Which figures in geometry are based on right angles?
.....
- 2) Why did the teacher of the speaker think that acute angles were “cute” ?
.....
- 3) Why are gables important in the roof?
.....
- 4) What does “obtuse” mean?
.....
- 5) Which angles can be found in the store shed?

2. Read the text and fill in the gaps with the correct linking expressions:

which further if while where

In plane geometry an angle is a figure which is formed by two straight lines (1)_____ meet at a point. The lines of an angle are called the *sides* and the point (2)_____ they meet is called the *vertex*. (3)_____ the sides of an angle are perpendicular to each other, they form a *right angle*, which means it has ninety degrees. An angle of less than 90° is an *acute* angle, (4)_____ an angle of more than 90° but less than 180° is an *obtuse* angle. (5)_____, an angle of more than 180° is a *reflex* angle.

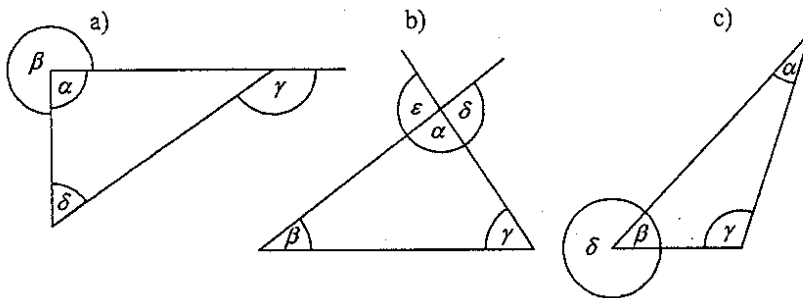
3. Complete the classification table:

Classification of angles according to their <i>magnitude</i>					
zero				straight	
$\alpha = 0^\circ$	$0^\circ < \alpha < 90^\circ$	$\alpha = 90^\circ$	$90^\circ < \alpha < 180^\circ$	$\alpha = 180^\circ$	$180^\circ < \alpha < 360^\circ$

4. What kind of angle does a clock make at (clockwise orientation):

- two o'clock?
- three o'clock?
- four o'clock?
- twenty to ten?
- twelve minutes past seven?
- twenty-nine minutes past twelve?

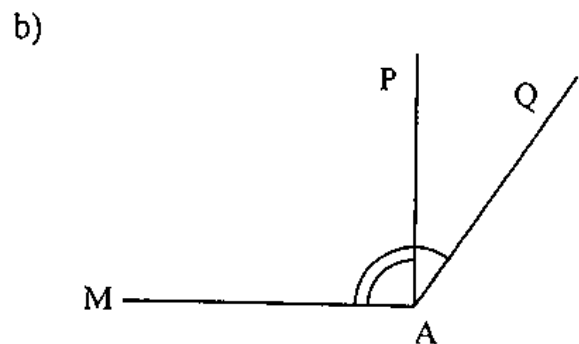
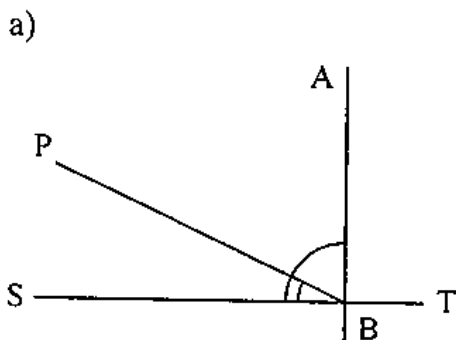
5. Name the kinds of angles shown in the figures and express some relation between them, e.g. $\alpha + \beta = \dots$ (please check the pronunciation of $\alpha, \beta, \gamma, \delta, \varepsilon$).



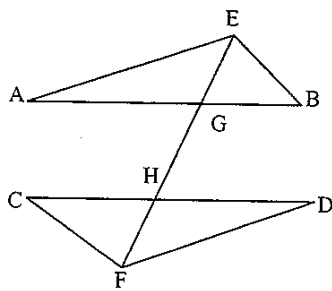
6. Are the following statements true or false? If a statement is false, correct it.

- The exterior angles of a triangle are always obtuse.
- Only two angles of a triangle can be obtuse.
- The smallest angle of a triangle is opposite the shortest side.
- The point where the sides of an angle meet is called the vertex.

7. Describe the lines (horizontal, transversal, perpendicular, ...) and angles (acute, obtuse, the sum of ...) in the following figures:



8. a) Look at the following figure and describe it (shapes, lines, angles, ...):



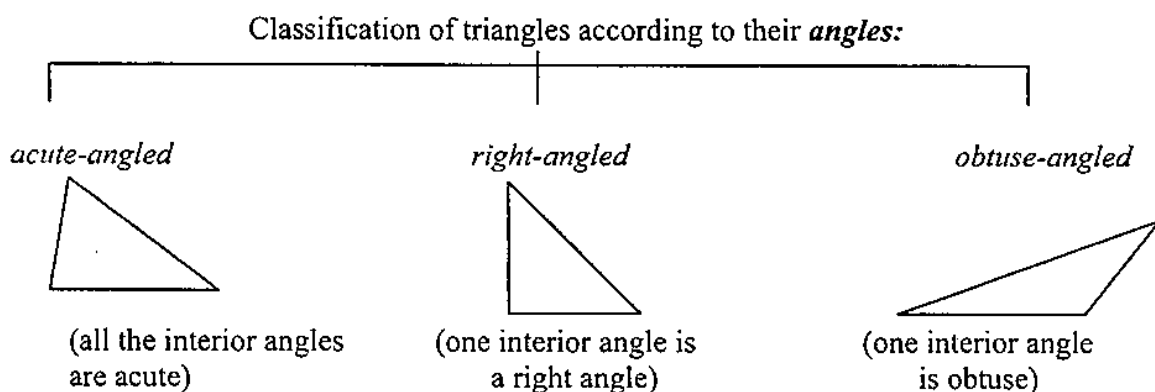
b) Consider $\angle AGH$ and its relation to other angles. Can you identify which angle will make with $\angle AGH$:

- corresponding angles
- alternate angles
- vertically opposite angles
- adjacent angles on a straight line?

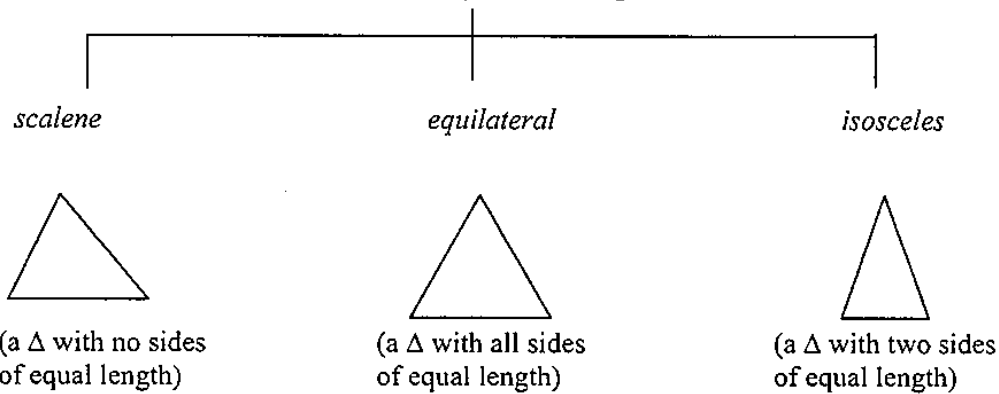
c) Match the mathematical expressions on the left to their descriptions.

$\angle AGH = \angle EGB$	They are corresponding angles.
$\angle AGH = \angle CHF$	They are alternate angles.
$\angle AGH = \angle GHD$	They are vertically opposite angles.
$\angle AGH + \angle AGE = 180^\circ$	The exterior angle of a triangle equals the sum of the interior opposite angles.
$\angle AGH = \angle EAG + \angle AEG$	The sum of adjacent angles on a straight line is 180° .

9. Study the following two classification charts and complete the text below with the information from the charts, use suitable linking expressions (CREDIT TEST PRACTICE).



Classification of triangles according to their *sides*:

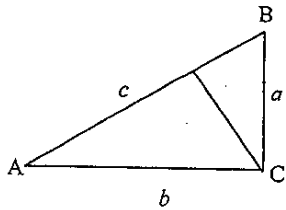


A triangle is a three-sided figure. The three sides of a triangle meet at points called *vertices* (sg. vertex). The vertex at the top of a triangle may be called the *apex*, and the line at the bottom may be called the base. Triangles may be classified according to their angles or according to their sides.

10. Revision. Fill in the missing words:

- a) If each of the angles in a triangle is equal to 60° , the triangle is called
- b) If two angles of a triangle are equal to 45° , the triangle is called a triangle.
- c) If two lines meet at an angle of 90° , they are to each other.
- d) Each triangle has three points, or

11. Read the text about a right-angled triangle and complete the exercises below.



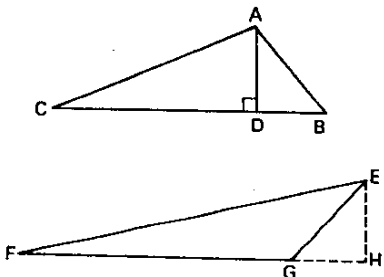
In a right-angled triangle the side *c* opposite the right angle is called the *hypotenuse*. A, B, C are *vertices* opposite the sides *a*, *b*, *c*. The line leading from the vertex perpendicular to the hypotenuse is called an *altitude* of the triangle.

- a) Label the three sides of ABC in relation to $\angle CAB$, using the words *hypotenuse*, *opposite* and *adjacent*.
- b) Complete this statement of Pythagoras’s Theorem:
The square of the is equal to the sum of the
- c) Complete the following:
 tangent = *opposite/adjacent*
 sine =
 cosine =
 cotangent =
 tan CAB =
 sin CAB =
 cos CAB =

12. Look at the pictures and complete the gaps with the right expressions:

base	area	altitude
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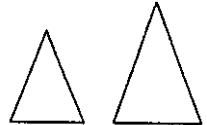
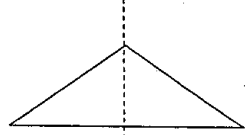
AD is an _____ of the triangle. BC is the _____. To find the _____ of a triangle, we multiply the base by the altitude, and then divide by 2.



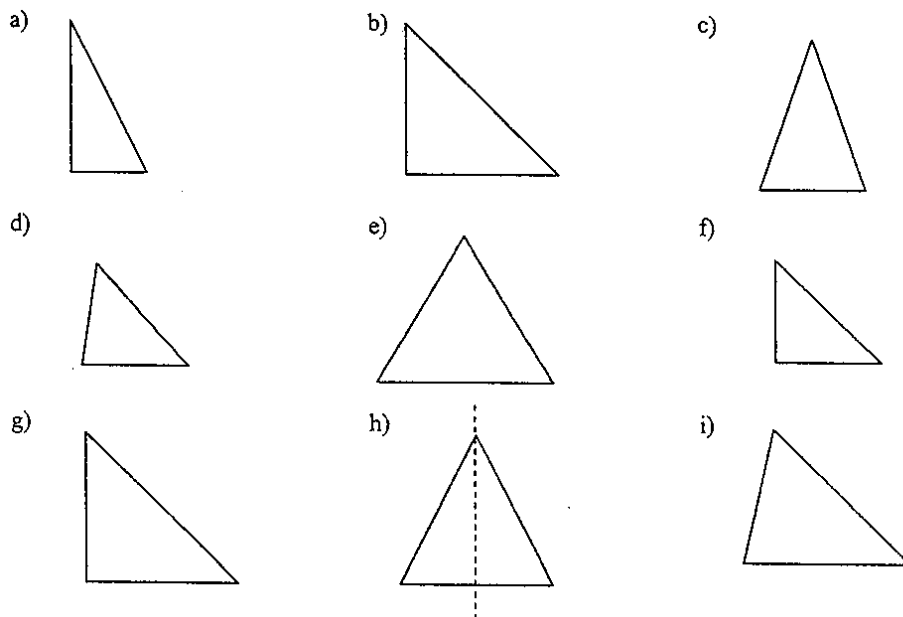
And now complete the conclusion:

AD is equal to EH and BC is equal to FG. The altitudes of the two triangles are equal and so are the bases. Therefore _____.

13. Study the pictures and descriptions below and complete each text with the correct adjective:

symmetrical	congruent	similar
	Two triangles are if the following parts are equal: <ul style="list-style-type: none"> • two sides and the included angle; or • a right angle, hypotenuse and side; or • two angles and a corresponding side; or • all three sides. 	
	Two triangles are if they have their corresponding angles equal.	
	These two triangles are, they are on either side of an <i>axis of symmetry</i> (or <i>central line</i>).	

14. Describe each triangle, and any relationships between them (symmetry, similarity, congruence):



References:

Part II based on Křepinská, A., Houšková, M., Bubeníková, M. *Rozšiřující materiály pro výuku anglického jazyka. Matfyzpress 2006.*