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1. Signs and Symbols *znaky a symboly*

Addition *přidání, sčítání*



add
plus
and
total of
increase by
sum of
altogether

Subtraction *odčítání*



subtract
minus
take away
decrease by
reduce by
take away from
difference between

Multiplication

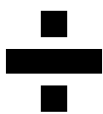
násobení



multiply
times
by
product of
groups of
lots of

Division

dělení



divide by
into
over
out of
share
each
part of
portion of

==

equals *rovná se*
is
is the same as
makes
has the same value as

≈
≈

is approximately *je zhruba*
about
roughly
close to
nearly
around
almost the same as

>

is more than *je více než*
is greater than
is bigger than

<

is less than *je menší než*
is smaller than
is not as big as

\geq Bigger than or equal to *je více nebo se rovná*

\leq Smaller than or equal to *je méně nebo se rovná*

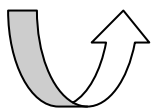
% Per cent *procent, procento*
Out of one hundred

:

Ratio *poměr*
To



Clockwise *pravotočivý*



Anticlockwise *levotočivý*
Counter clockwise



Root *mocněnec*



Infinity *nekonečno, nekonečný počet*

2. Area *plocha, prostor, obsah*

Area means how much space a flat (two dimensional) shape takes up. We measure area in squares e.g.

Square centimetres (cm^2)

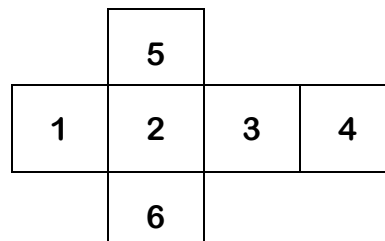
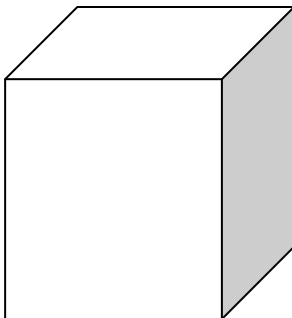
centimetr čvereční

1	2	3	4
5	6	7	8

$$\begin{aligned}\text{Area} &= \text{length} \times \text{width} \\ &= 4 \text{ cm} \times 2 \text{ cm} \\ &= 8 \text{ cm}^2\end{aligned}$$

Kostka má šest stran.

A cube has six faces. The surface area of a cube may be drawn like this:-



3. Volume *množství, objem*

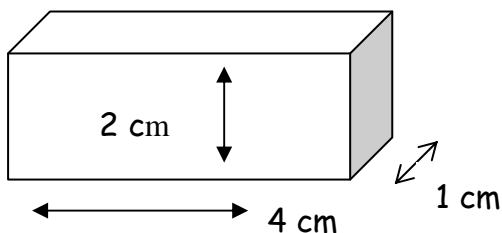
Volume means how much space a solid (3 dimensional) shape takes up. We measure volume in cubes e.g.

Cubic centimetre (cm³)

centimetr kubický

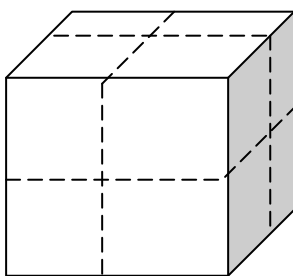
Volume = length x width x height

Objem = délka x šířka x výška



$$V = 4 \times 1 \times 2$$

$$V = 8 \text{ cm}^3$$



This cube is made of eight centimetre cubes.

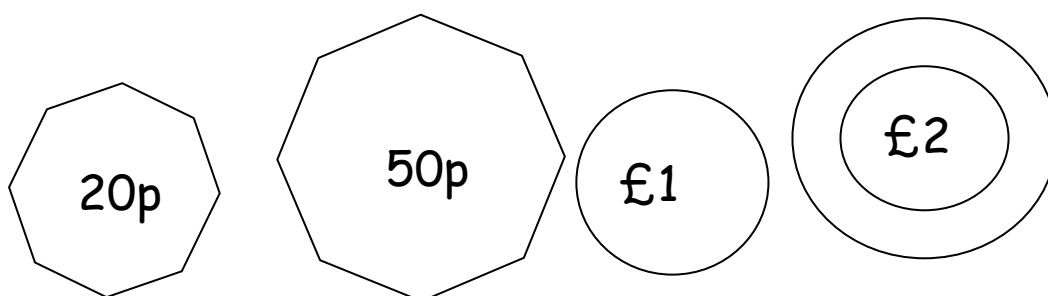
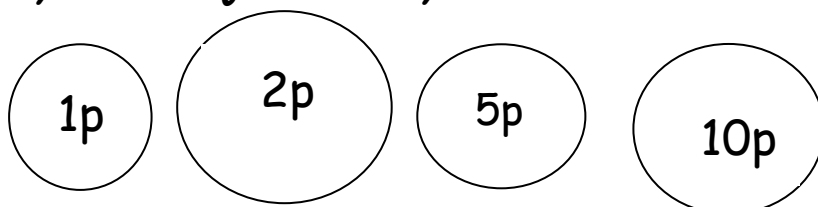
Its volume is 8cm³

Objem kostky je 8 cm³

4. Money peníze

These are the coins used in Britain:-

Tyto mince jsou užívány v Británii:



One pound (£1) is 100 pence.

These are the notes in use:- *Tyto bankovky jsou užívány v Británii*



We usually write prices like this:-

£2.99 £3.25

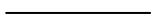
5. Lines *křivky*



Straight line *přímka*



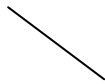
Curved line *křivka*



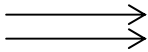
Horizontal line *horizontála*



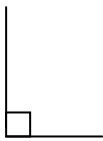
Vertical line *kolmice*



Diagonal line *příčná čára*

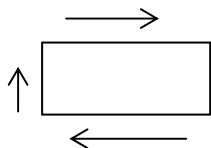


Parallel lines *přímky rovnoběžné*



Perpendicular lines *dvě kolmice a pravý úhel*

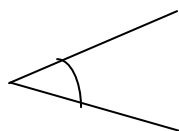
(right angle)



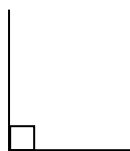
perimeter

obvod

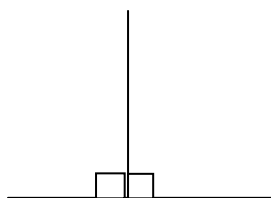
6. Angles úhly



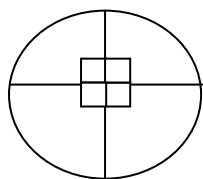
These two lines meet at an angle. An angle is measured in degrees ($^{\circ}$)
úhel je měřen ve stupních



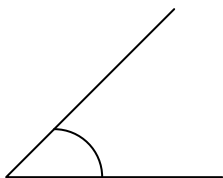
This is a right-angle. It is 90° .
tohle je pravý úhel a má 90°



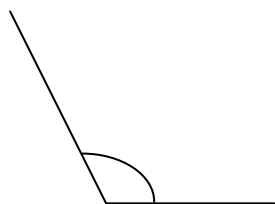
A straight line is made of two right angles. It is 180°
dva pravé úhly mají 180°



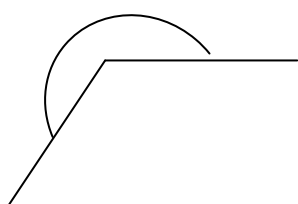
A circle is made of four right angles. It has 360°
kruh je tvořen ze čtyř pravých úhlů



An angle that measures less than 90° is called an acute angle *ostrý úhel*

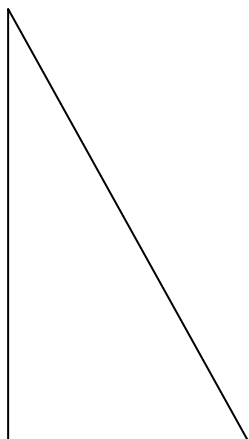


An angle which measures more than 90° is called an obtuse angle. *tupý úhel*



An angle that measures more than 180° is called a reflex angle. *zvratný úhel, zpětný úhel, nekonvexní úhel*

7. Triangles *trojúhelník*



A triangle is a shape with 3 straight sides. It also has 3 angles. *Trojúhelník je geometrický útvar se třemi vrcholy a třemi stranami. Taky má tři úhly.*

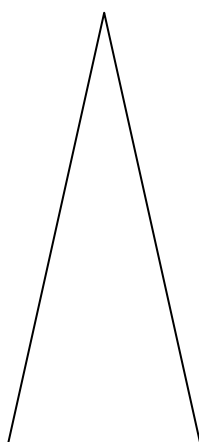
The points of a triangle are called the vertices.

There are different types of triangles :-

Druhy trojúhelníků:

Isosceles

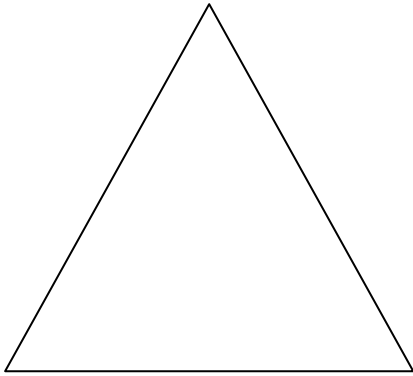
rovnoramenný trojúhelník



Two sides are the same length. The two angles at the base are equal

Equilateral

rovnostranný trojúhelník

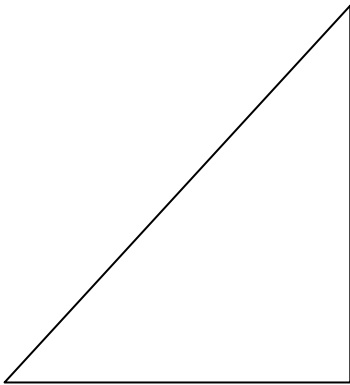


All three angles are equal.
všechny úhly jsou stejné

All three sides are the same length.
všechny strany jsou shodné

Right-angle

pravoúhlý trojúhelník

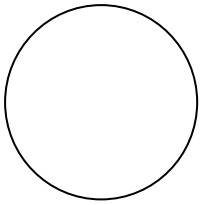


One of the angles measures 90° .
vnitřní úhel je pravý a má 90°

The longest side is called the hypotenuse

The angles of a triangle always add up to 180° .

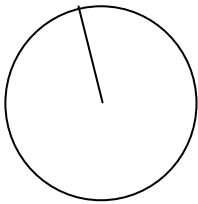
8. Circles kruhy



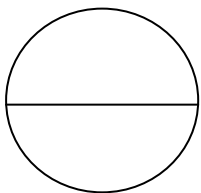
The perimeter of a circle is called the circumference.
tohle je obvod kružnice



Half of a circle is called a semi-circle.
polovina kruhu se nazývá půlkruh

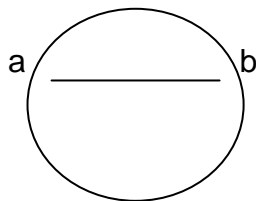


Any line from the centre of a circle to the circumference is called the radius.
okruh

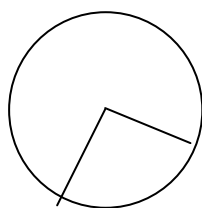


A straight line from one side of a circle to the other side through the centre is the diameter.
průměr kružnice

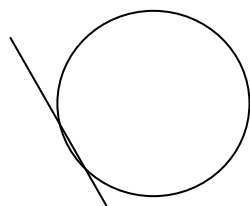
The diameter is twice the length of the radius.



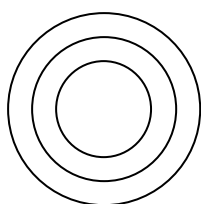
Part of the circumference is an arc.
The straight line ab is a chord. The shaded area is a segment
prostor mezi body a , b se nazývá výsek, úsek.



An area of a circle enclosed by two radii and an arc is a sector
tady se jedná o kruhovou výseč

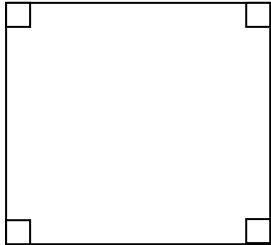


A line which touches the circumference at only one point is a tangent - *tečna*



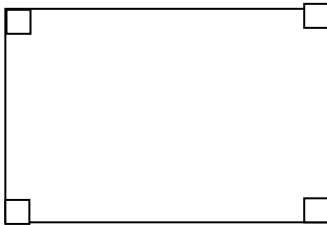
Circles which have the same centre are called concentric circles -
soustředné kruhy

9. Shapes *geometrické útvary*



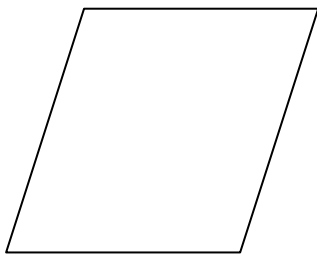
Square *čtverec*

It has four equal sides and four right angles



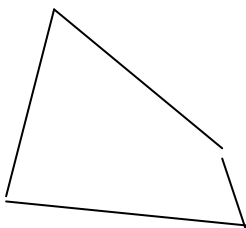
Rectangle *pravouhlý čtyřúhelník*

It has four right angles and opposite sides are equal



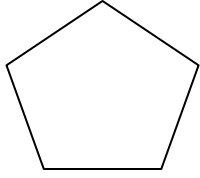
Parallelogram *rovnoběžník*

Opposite sides are parallel



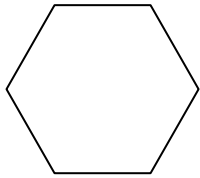
Quadrilateral *čtyřúhelník*

Any shape with four straight sides



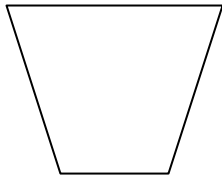
Pentagon *pětiúhelník*

It has five sides and five angles



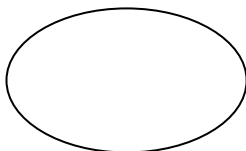
Hexagon *šestiúhelník*

It has six sides and six angles



Trapezium *lichoběžník*

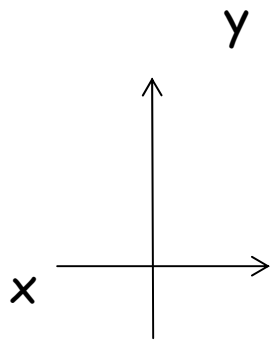
One set of sides is parallel



Ellipse *elipsa*

This is shaped like an egg

10. Graphs grafy

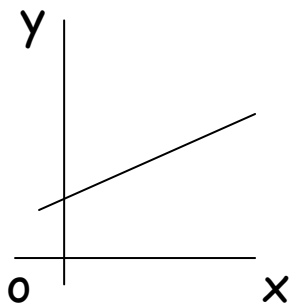


A graph has a vertical axis (y)
and a horizontal axis (x).

y je svislá os

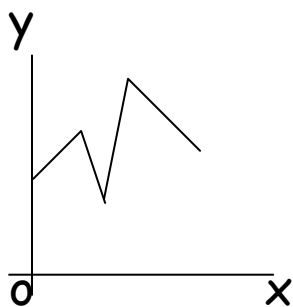
x je vodorovní os

There are many different types of graphs or charts:-



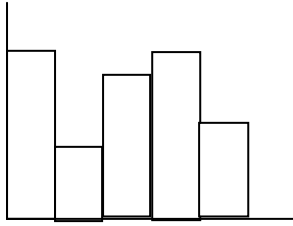
A straight-line graph

lineární graf

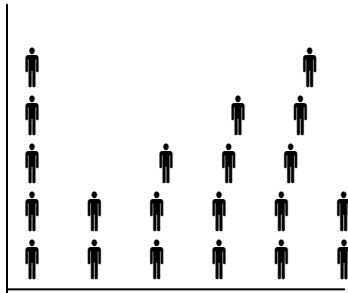


A graph plotting points

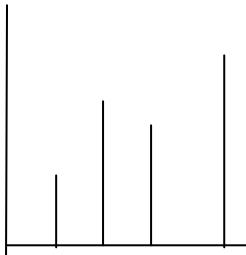
souřadnicový graf



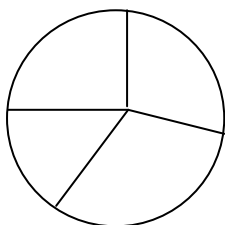
A bar chart or block graph
sloupcový graf, diagram



A pictogram
obrazový znak, graf



A column graph
sloupcový graf

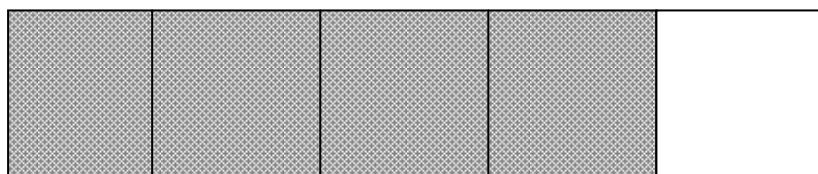


A pie-chart is a circle divided
into different sectors
kruhový diagram, graf

11. Fractions zlomky

A fraction is a part of a whole. *Zlomek je podíl dvou výrazů. Může mít tuhle podobu:*

$4/5$ is a fraction. It may be shown like this:-



$4/5$

$1/5$

Here is another fraction: $2/3$

This means two parts out of three. We say two-thirds.

The number at the top is called the Numerator.
čitatel zlomku

The number at the bottom is called the

Denominator. *jmenovatel zlomku*

This is a mixed number $3\frac{1}{2}$

It is made of a whole number and a fraction. It may be written as an Improper Fraction:-

$$3\frac{1}{2} = \frac{7}{2}$$

(mixed number) (improper fraction)

smíšené číslo *nepravý zlomek*

Equivalent (equal) Fractions *ekvivalent*

$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

12. Decimals desetiny

Parts of a whole number can also be written as decimals:

$1/10$ is the same as 0.1

$\frac{1}{4}$ is the same as 0.25

$4 \frac{1}{5}$ is the same as 4.2

Percentages procentní sazba, podíl v procentech

1% is one in every 100

1% is 1p in every pound

1% is $1/100$

1% is 0.01

Conversion Table *převodní tabulka*

	Fraction	Decimal	Percentage
Half <i>polovina</i>	$\frac{1}{2}$	0.5	50%
Quarter <i>čtvrtina</i>	$\frac{1}{4}$	0.25	25%
Three- Quarters <i>tři čtvrtiny</i>	$\frac{3}{4}$	0.75	75%
One tenth <i>desetina</i>	1/10	0.1	10%
One fifth <i>pětina</i>	1/5	0.2	20%
One third <i>třetina</i>	1/3	0.33	33.33%
Two thirds <i>dvě třetiny</i>	2/3	0.66	66.66%
One eighth <i>osmina</i>	1/8	0.125	12.5%

13. Distance vzdálenost

Metric System *metrická soustava*

mm - millimetre

cm - centimetre

m - metre

km - kilometre

10mm = 1cm 100cm = 1m 1000m = 1km

Imperial System *anglosaský systém*

abbreviations

in - inch *palec*

ft - foot *stopa*

yd - yard *yard*

mile - mile *míle*

12 ins = 1ft 3ft = 1yd 1760 yds = 1mile

Conversions *převod*

$2\frac{1}{2}$ cm = 1 in .9m = 1 yd 1km = $\frac{5}{8}$ mile

14. Capacity *kapacita*

Metric System *metrická soustava*

ml - millilitre

cc - cubic centimetre

l./li - litre

$$1\text{cc} = 1\text{ml} \quad 1\text{l} = 1000\text{ ml}$$

Imperial System *anglosaský systém*

fl.oz - fluid ounce

pt. - pint

gal. - gallon

$$20\text{ fl oz.} = 1\text{ pt} \quad 8\text{ pts} = 1\text{ gal}$$

Conversions

$$1\text{ litre} = 1\frac{3}{4}\text{ pints} \quad 1\text{ gal} = 4\frac{1}{2}\text{ litres}$$

15. Weight

Metric System

mg. - milligram

g. - gram

kg. - kilogram (kilo)

1000 mg = 1 g 1000 g = 1kg

1000 kg = 1 tonne

Imperial System

oz. - ounce *jednotka hmotnosti*

lb. - pound *libra*

st. - stone *jednotka hmotnosti*

16 oz = 1lb 14lb = 1 st

Conversions

převod

1 oz = 28 g 1 kg = 2 1/5 lb

16. Time čas

Units of Time jednotky času

sec - second	wk - week <i>týden</i>
min - minute	yr - year <i>rok</i>
hr - hour <i>hodina</i>	p.a. - per annum <i>ročně</i>

60 sec = 1 min

60 mins = 1hr

24 hrs = 1 day

7 days = 1 wk

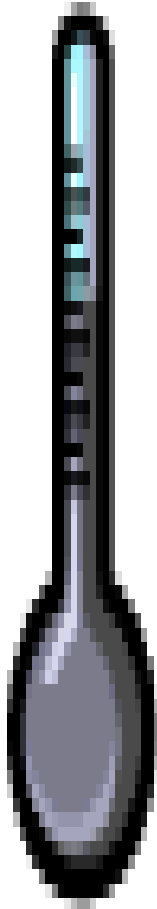
52 wks = 1 yr

12 months = 1 yr

Calendar Months

30 days has September,
April, June and November.
All the rest have 31,
Except February all alone
Which has 28 days clear
And 29 each leap year.

17. Temperature *teplota*



- 100° boiling point
bod varu
- 37° body temperature
teplota těla
- 0° freezing point
bod mrazu

Temperature is usually measured in °C
(degrees Celsius).

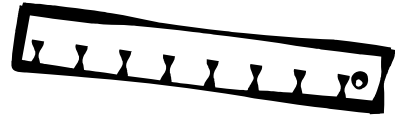
Sometimes °F (Fahrenheit) is used

$$0^{\circ}\text{C} = 32^{\circ}\text{F}$$

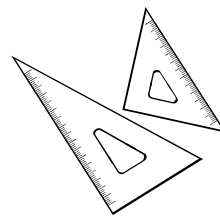
$$100^{\circ}\text{C} = 212^{\circ}\text{F}$$

18. Instruments *pomůcky*

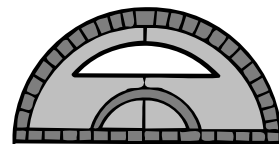
Ruler
pravítko



Set square
rýsovací trojúhelník



Protractor
úhloměr



compass
kružítko

