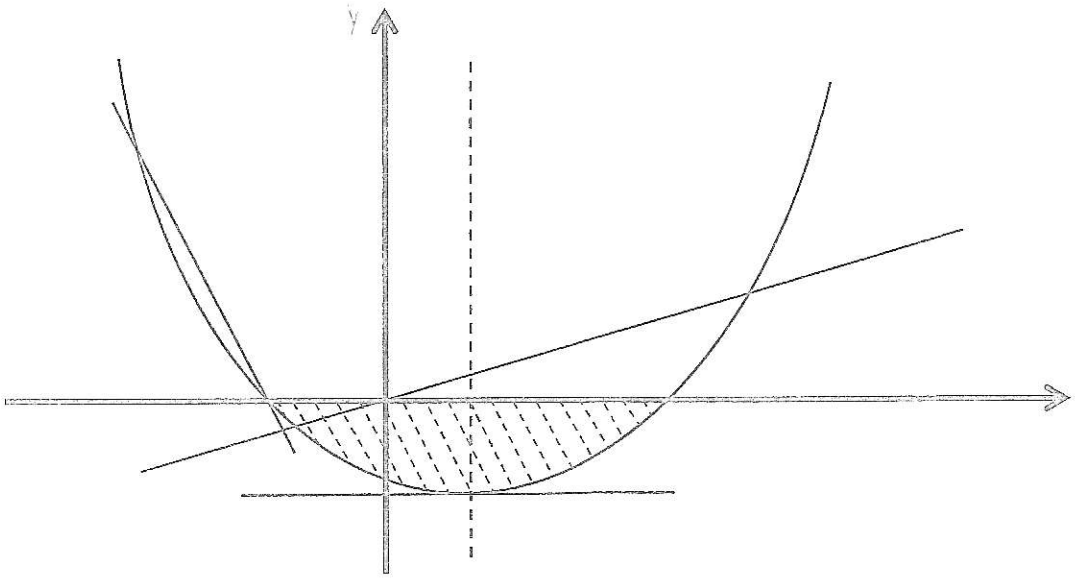
Talking about graphs

Exercise 1

Look at the words below. Listen to your teacher pronounce them and mark the stress and sounds of the words. Then label the diagram and describe it to your partner.

x-axis	horizontal	vertical	linear graph	above the *x*-axis
y-axis	parabola	to cross	quadratic graph	below the *x*-axis
axes	secant	tangent	point of intersection	shaded area
vertex	linear equation	*x*-intercept	point of inflection	origin
point	straight line	*y*-intercept	is perpendicular to	turning point
curve	axis of symmetry	curved line	inverted parabola	to intersect
Cartesian coordinates (*x*,*y*)		the parabola opens upwards/downwards/sideways		
positive/negative gradient (slope)		the steepness of the slope		1st, 2nd, 3rd, 4th quadrant



Exercise 2

What is the difference between *to plot a graph* and *to sketch a graph*?

Exercise 3

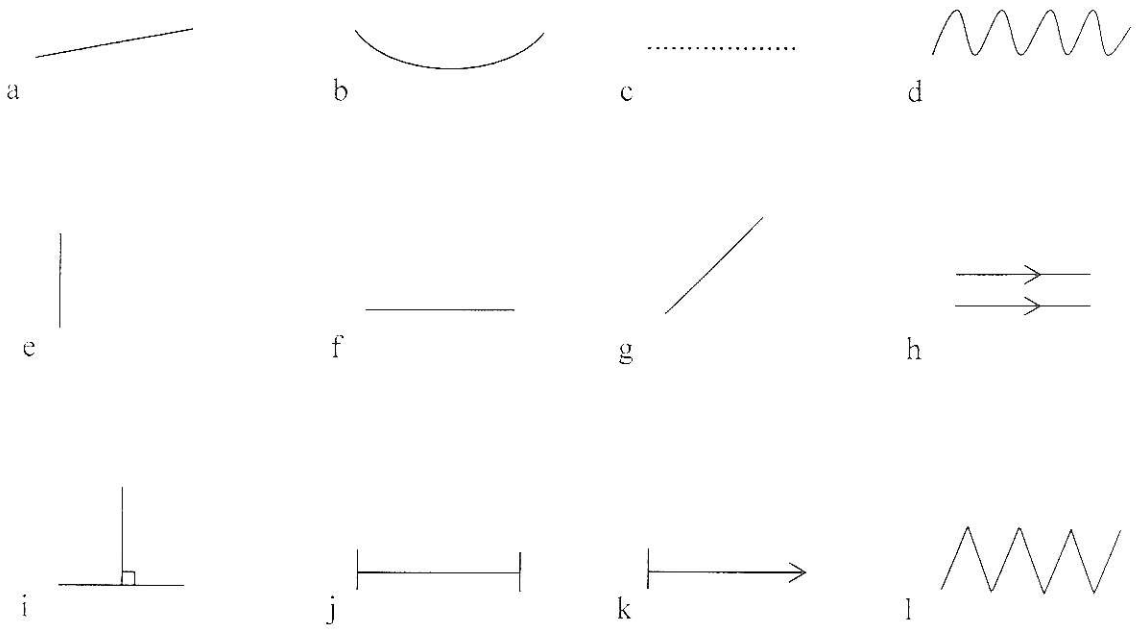
What are the missing words?

1 Look at this point _____ the line.
2 The lines intersect _____ this point.
3 By looking at the graph we can see that the speed increases _____ time.
4 This line passes _____ the origin.
5 Plot the graph of voltage (*y*-axis) _____ current (*x*-axis).
6 The y-intercept can be read _____ the graph.

Create your own graphs and look at mind maps for maths revision

You can create your own graphs at: www.createagraph.com
Mind maps for maths revision are at: http://www.mathsrevision.com

Lines

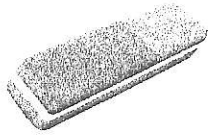


Exercise 1
Match the lines above with the words below and mark where the word is stressed.

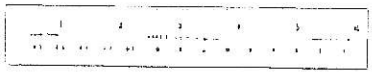
___ horizontal line	___ vertical line	___ straight line
___ wavy line	___ perpendicular lines	___ curved line
___ zigzag line	___ diagonal line	___ dotted line
___ parallel lines	___ line segment	___ ray

Exercise 2

1 If you make a mistake, you can rub it out with a _____ .



2 If you want to draw and measure straight lines you need a _____ .



3 If an object moves in a straight line, it has _____ motion.

4 orthogonal ≡ _____ .

5 A piece of straight line between two points is a _____ .

6 A straight line which has a starting point but no endpoint is a _____ .

Describing change

to fall, to decrease, to drop, to decline, to go down
to show a gradual decrease in, to show a gradual decline in

Adverbs: gradually / slowly / slightly / steadily

to fall, to decrease, to drop, to decline, to go down,
to show a rapid decrease in, to show a sudden decline in

Adverbs: sharply / steeply / rapidly / suddenly / quickly / dramatically

to rise, to increase, to go up, to show a gradual increase in

Adverbs: gradually / slowly / slightly / steadily

to rise, to increase, to go up, to shoot up, to show a rapid increase in

Adverbs: sharply / steeply / rapidly / suddenly / quickly / dramatically

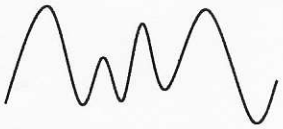
to peak, to reach a peak/maximum/high point

to reach a minimum, to reach a low point

to dip

to remain stable, to remain constant, to stay at the same level, to stay the same

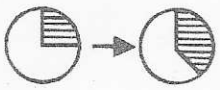
to flatten out, to reach a plateau, to level off,



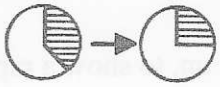
to fluctuate, to vary

to stabilise

a steady rise, a continuous rise, a monotone increase (i.e. it never falls or dips)



to expand, to grow



to decline, to shrink

Pie charts are often used in statistics and business.
Note: we talk about the *segment* of a pie chart.

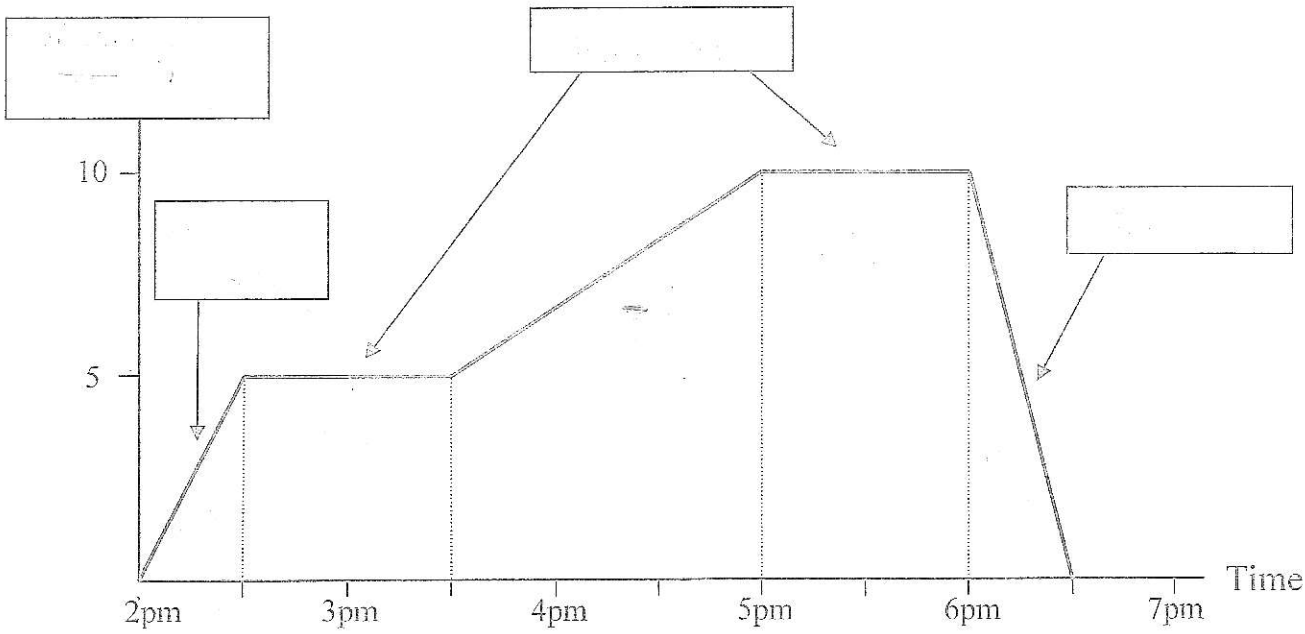
Talking about figures and results

The result/figure is	under ...	just under ...	well under ...
	above ...	just above ...	well above ...
	roughly ...		
	approximately ...		
	more or less ...		
	in the region of ...		

Note: *just under* = a little under, *well under* = a lot under
just above = a little above, *well above* = a lot above
e.g. Her IQ is well above the national average.

Prepositions
to increase/rise/fall/drop *by* 10%
an increase/rise/fall/drop *of* 10% (a numerical amount)
an increase/rise/fall/drop *in* pressure (a noun)

Travel graphs: worksheet



1 A travel graph is always _____.

2 The _____ of a line on the graph represents the _____ of an object, i.e. how fast it is moving, e.g. 70km/h (kilometres per hour).

3 The speed of an object = _____.

4 The _____ the graph, the greater the _____.

5 The horizontal lines on the graph are where the object is _____, i.e. it is _____.

6 The line representing the return journey _____.

7 When an object is moving at a _____ speed, the line on the graph is straight, but sloped.

NB: The *speed* of an object is how fast it is moving, e.g. 40km/h, and is a _____ quantity, whereas the *velocity* of an object is its speed in a _____, and is a _____ quantity, e.g. 40km/h east.

Question

Now work with your partner. What is the speed of the return journey?

Answer

Speed = gradient = _____ = _____ metres/minute = ____ km/h.