

GRAYS TUITION CENTRE – Online Tutoring

WEEK: 3

Week Beginning: (04/01/2021)

Subject: MATHS

Year: 8

Lesson Objective:

- Be able to understand, interpret and draw graphs
- Be able to use knowledge of graphs to interpret and answer questions – Stemming into gradients and y-intercepts
- Attempt GCSE questions on interpreting graphs

Class Worksheets

- Pages 124 to 127 (see below)
- GCSE questions

Homework

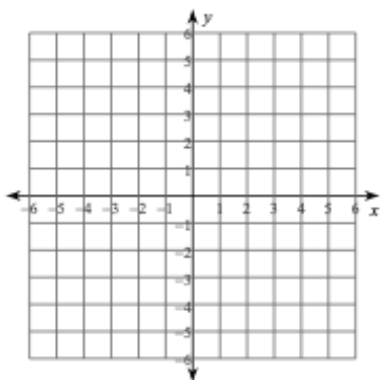
- Additional worksheet (see below)

Additional Notes

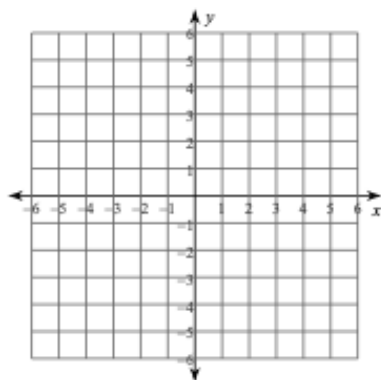
- All lesson worksheets and **homework for next week (due Week 4)** worksheets can be found below
- Week 2 homework will be marked in lesson
- Please have **A RULER, PENCIL** and **PLAIN/LINED PAPER** available

Find the x and y intercepts and graph the line. Your x and y intercepts MUST be written as a point.

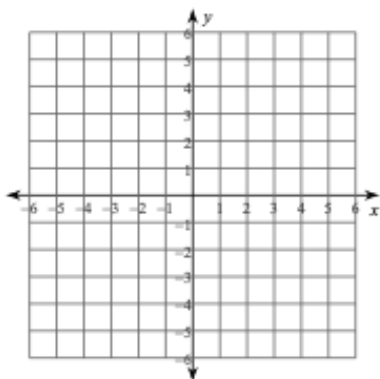
1) $4x + 5y = 20$



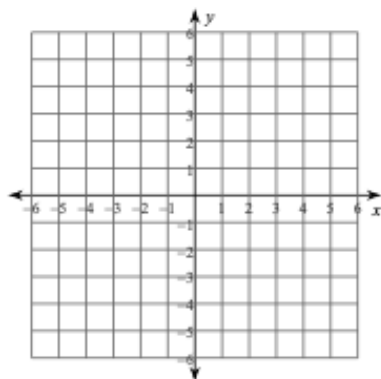
2) $2x + y = 2$



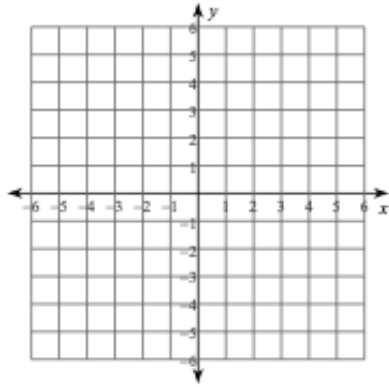
3) $2x - y = -4$



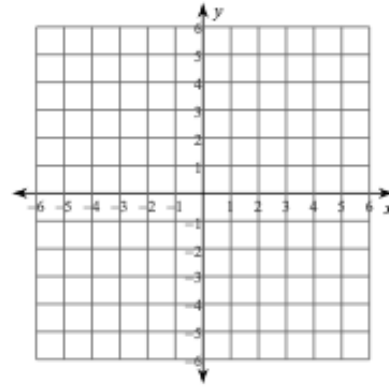
4) $x - 2y = 8$



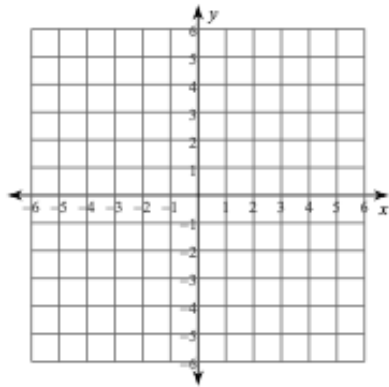
5) $2x + y = -4$



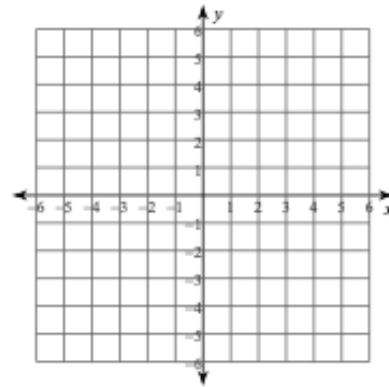
6) $x - y = 5$



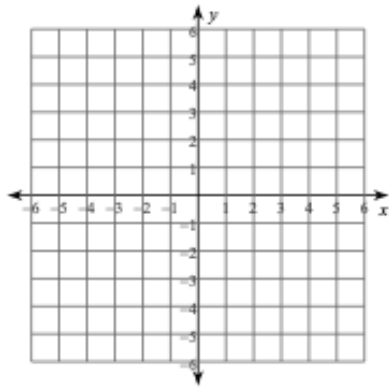
7) $x + 2y = -2$



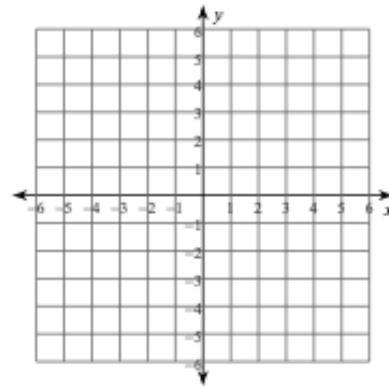
8) $x + y = 5$



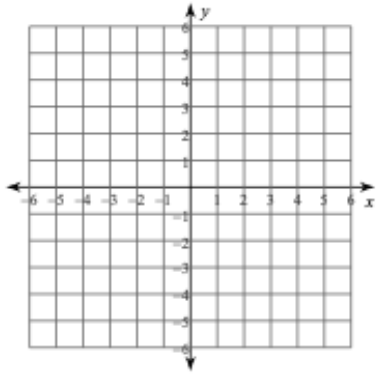
9) $5x + 4y = 20$



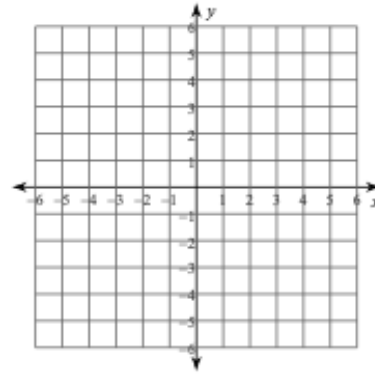
10) $x - y = 4$



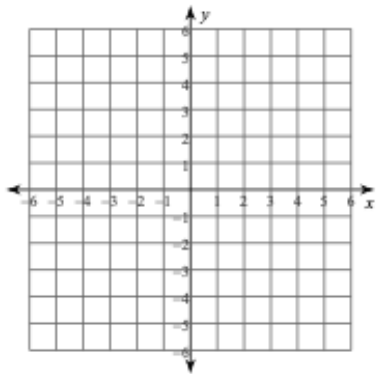
11) $3x - 5y = 15$



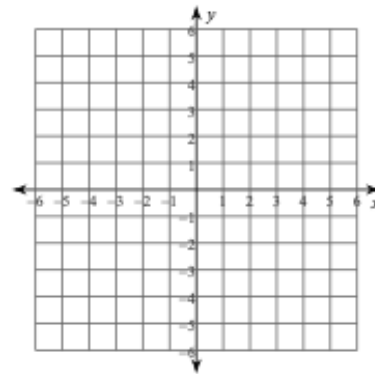
12) $3x - 2y = 6$



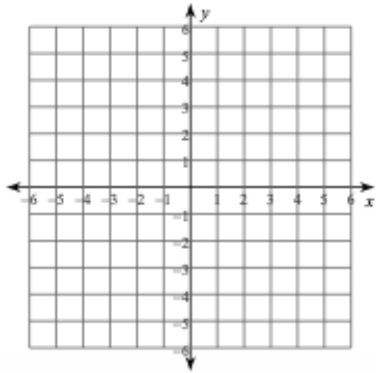
13) $x + y = 1$



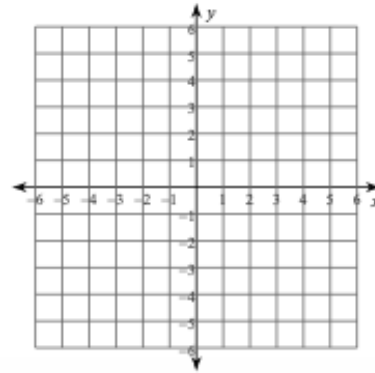
14) $x + 2y = 6$



15) $x + 4y = -4$



16) $x + y = -5$



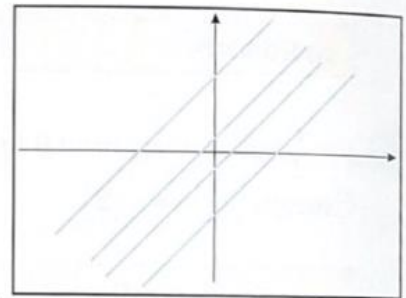
Exercise 2E

If possible, use a graphical calculator or a computer.

- 1 Draw the graphs of $y = 2x + 6$,
 $y = 2x + 1$, $y = 2x - 2$ and $y = 2x - 5$.

Write down what you notice about each line and its equation.

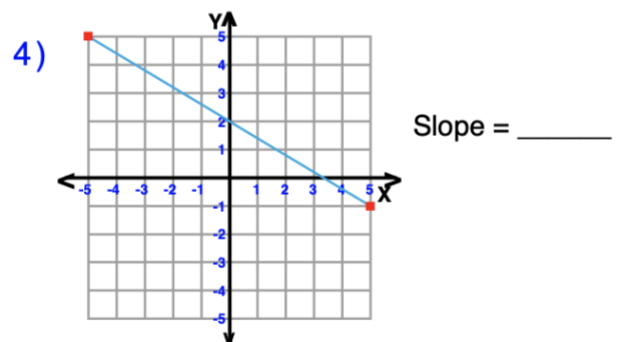
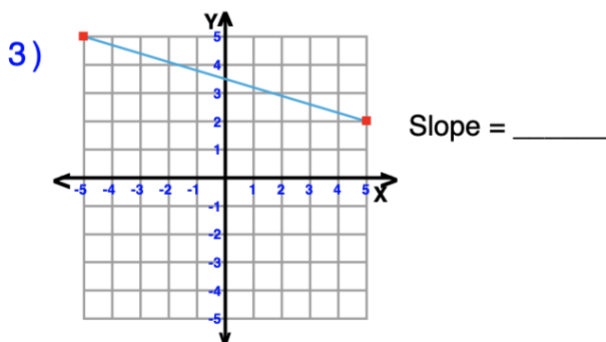
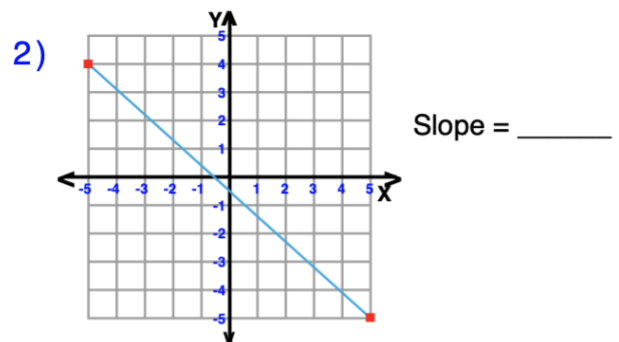
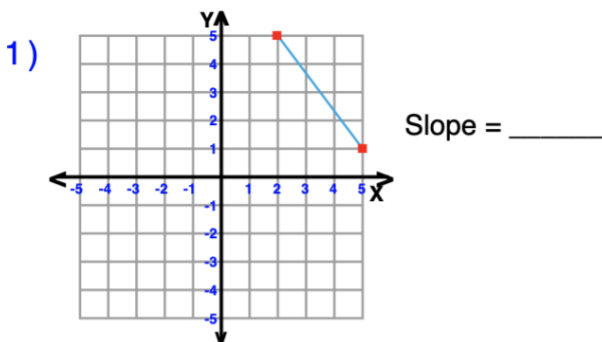
(Clue: look at the points where the lines cut the y-axis)



- 2 Draw the graphs of $y = x + 2$, $y = x + 5$, $y = x - 1$ and $y = x - 3$.
 Write down what you notice about each line and its equation.

- 3 Draw the graphs of $y = 3x$, $y = 3x + 2$, $y = 3x - 4$ and $y = 3x - 2$.
 Write down what you notice about each line and its equation.

What is the slope of each line ?



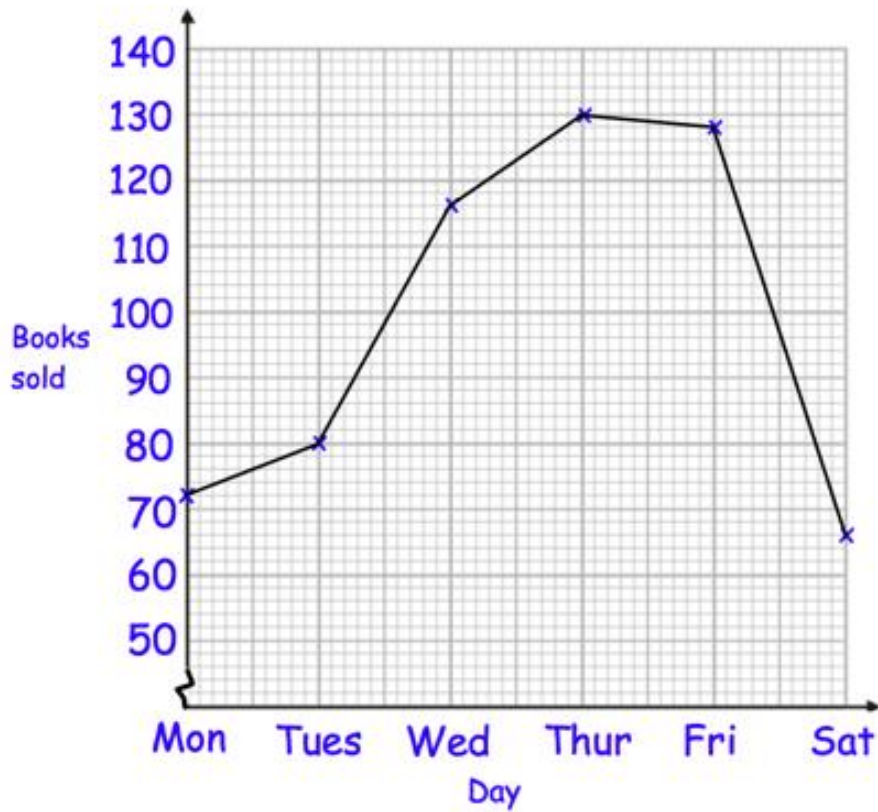
5) $y = \frac{2}{3}x - 1$ Slope = _____

6) $y = -\frac{1}{2}x + 2$ Slope = _____

7) $y = \frac{1}{3}x + 3$ Slope = _____

8) $y = -9x + 2$ Slope = _____

1. Below is a line graph that shows how many books are sold in a charity shop over one week.



- (a) On which day did the charity shop sell the most books?

.....
(1)

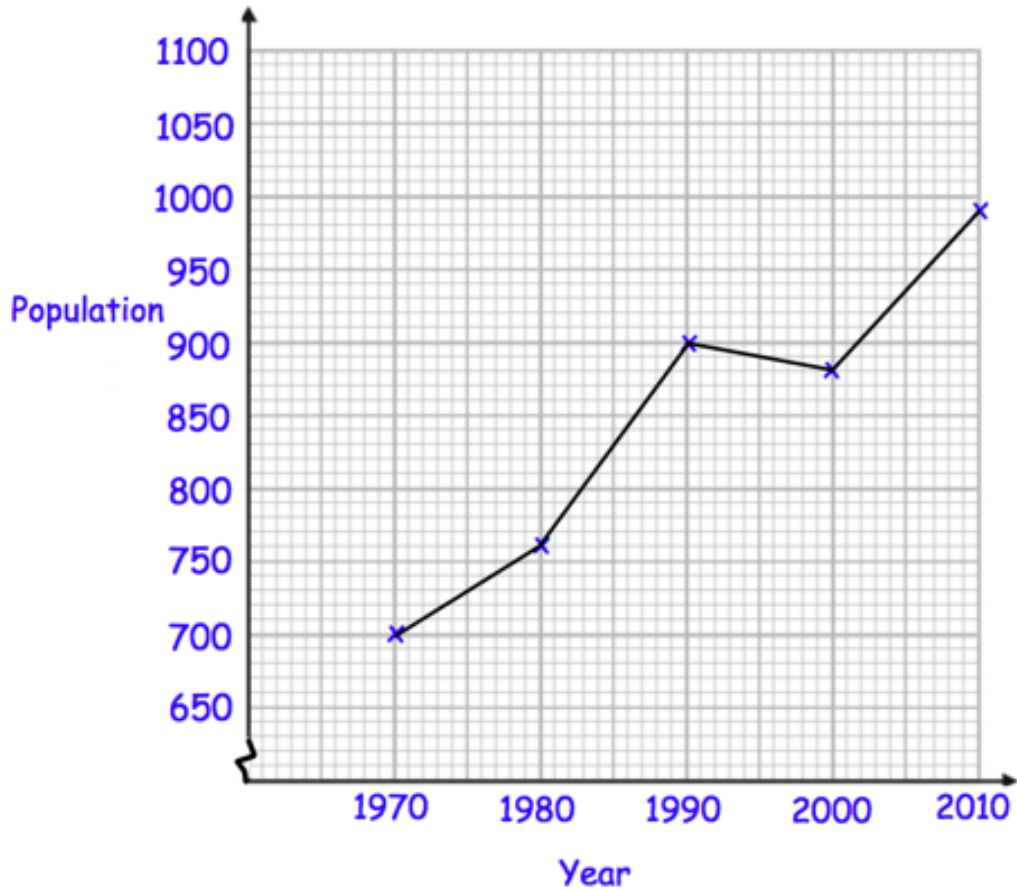
- (b) On which day did the charity shop sell the least books?

.....
(1)

- (c) How many books were sold on Tuesday?

.....
(1)

2. Below is a line graph that shows the population of a village.



(a) What was the population in 1980?

.....
(1)

(b) In which year was the population 700?

.....
(1)

The population is expected to increase by 120 by 2020.

(c) Work out the expected population in 2020.

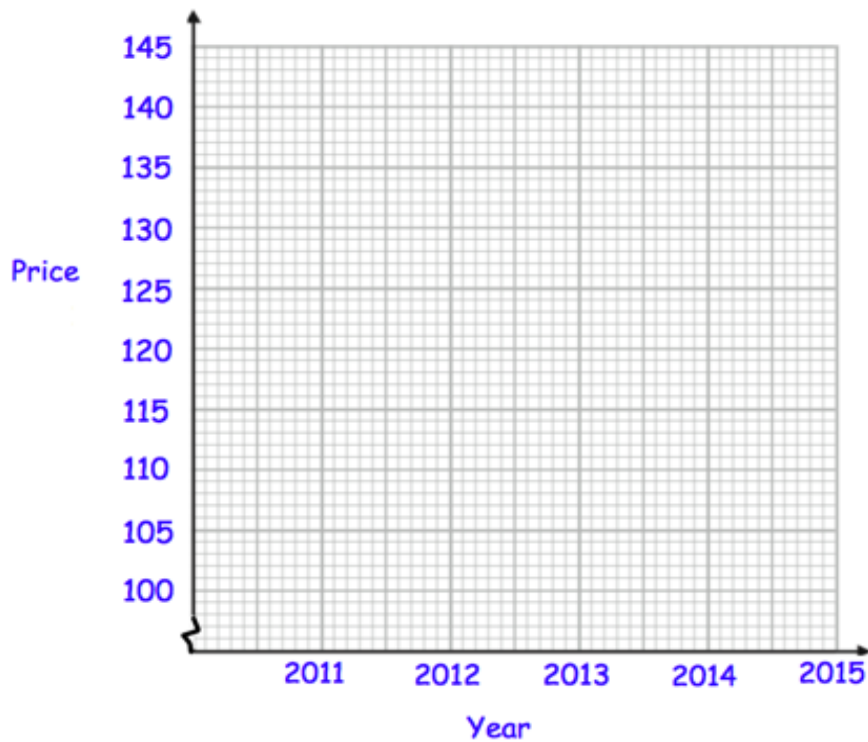
.....
(2)

Homework Questions:

3. The table shows the average price of unleaded petrol in England over 5 years.

Year	Price in pence
2011	111
2012	128
2013	133
2014	132
2015	108

- (a) Draw a line graph for the data



(2)

- (b) Between which two consecutive years did the price increase the most?

..... and

(1)

- 4 (a) Where do you expect the line $y = 2x + 5$ to cut the y -axis?
 (b) Where do you expect the line $y = 4x - 3$ to cut the y -axis?
- 5 Write down which of the two lines below are parallel?
- $y = 6x - 3$ $y = 2x - 3$ $y = 6x + 1$
- 6 Write down the equation of any line parallel to $y = 5x + 3$.
- 7 Draw the graphs of:
 $y = x^2$ $y = 4 \div x$ $y = x^2 + 3$ $y = x^2 - 4$
- 8 Do you think the graph of $y = x^2 + 1$ would be a straight line?

Using graphs

Exercise 3M

- 1 In June 2008, the pound (£) was worth 1.6 U.S. Dollars (\$).

This graph converts pounds into dollars.

- (a) What does one little square on the 'Pounds' axis show you?
 (b) What does one little square on the 'Dollars' axis show you?

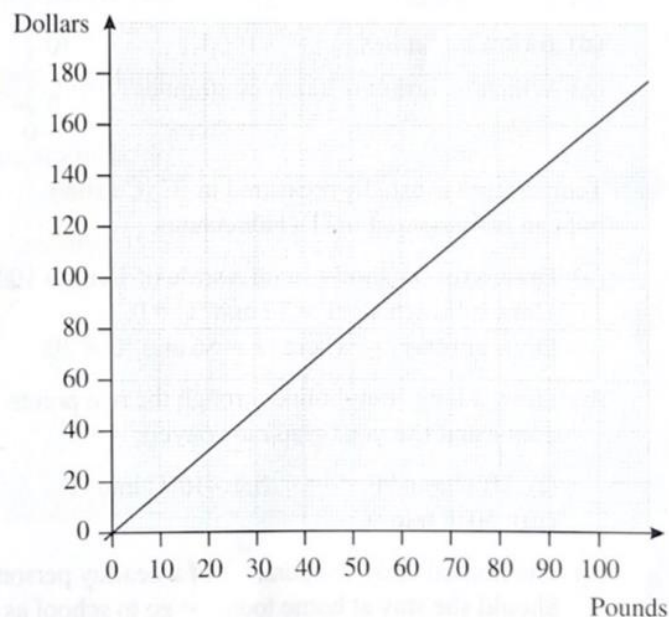
Use your graph to find out how many dollars are the same as

- (c) £50 (d) £25
 (e) £35 (f) £60

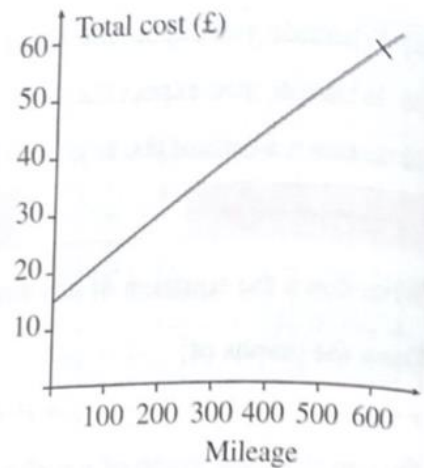
Use your graph to find out how many pounds are the same as

- (g) \$48 (h) \$70
 (i) \$16 (j) \$136

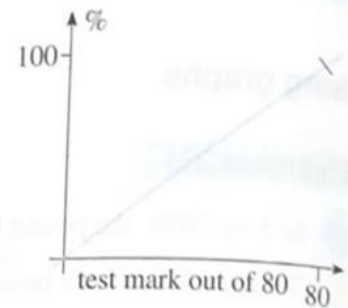
- (k) On holiday in the USA, Chad bought a meal for \$40. How many pounds did the meal cost?



- 2 A car hire firm charges an initial fee plus a charge depending on the number of miles driven, as shown.
- Find the total cost for driving 140 miles.
 - Find the total cost for driving 600 miles.
 - Find how many miles I can drive for a cost of £45.



- 3 A teacher has marked a test out of 80 and wishes to convert the marks into percentages. Draw axes as shown and draw a straight line through the points (0, 0) and (80, 100).
- Use your graph to convert
 - 63 marks into a percentage
 - 24 marks into a percentage
 - The pass mark was 60%. How many marks out of 80 were needed for a pass?



- 4 The graph converts kilometres (km) into miles. Use this graph to convert:
- 40 km into miles
 - 15 miles into km
 - 45 miles into km
 - 64 km into miles
 - Which is further – 30 km or 20 miles?

