GCSE Grade 5

Maths Booklet 4

Paper 3H
Calculator

1 The first four terms of a Fibonacci sequence are

$$a \qquad 2a \qquad 3a \qquad 5a$$

The sum of the first five terms of this sequence is 228

Work out the value of a.

....

(Total for Question 1 is 3 marks)

2 In a bag there are only red counters, blue counters, green counters and pink counters. A counter is going to be taken at random from the bag.

The table shows the probabilities of taking a red counter or a blue counter.

Colour	red	blue	green	pink
Probability	0.05	0.15	....	....

The probability of taking a green counter is 0.2 more than the probability of taking a pink counter.

(a) Complete the table.

(2)

There are 18 blue counters in the bag.
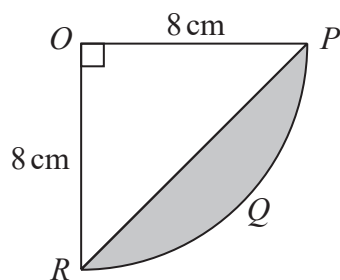
(b) Work out the total number of counters in the bag.

....

(2)

(Total for Question 2 is 4 marks)

3 The diagram shows a sector *OPQR* of a circle, centre *O* and radius 8 cm.

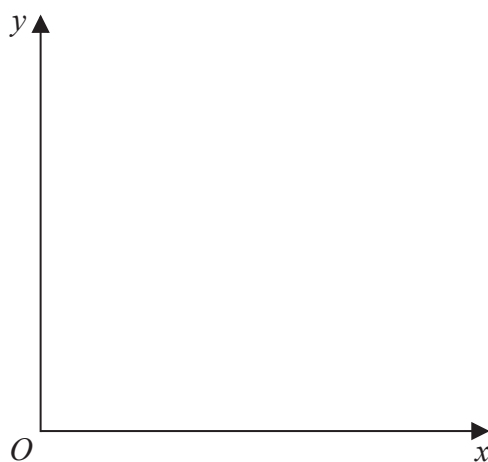*OPR* is a triangle.

Work out the area of the shaded segment *PQR*.
Give your answer correct to 3 significant figures.

.... cm^2

(Total for Question 3 is 4 marks)

4 (a) Using the axes below, sketch a graph to represent the statement
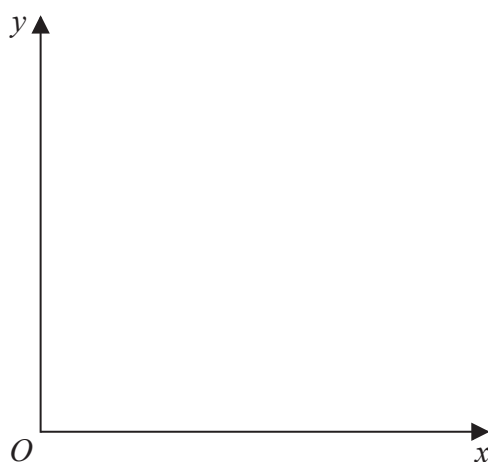
y is directly proportional to x

(b) Using the axes below, sketch a graph to represent the statement

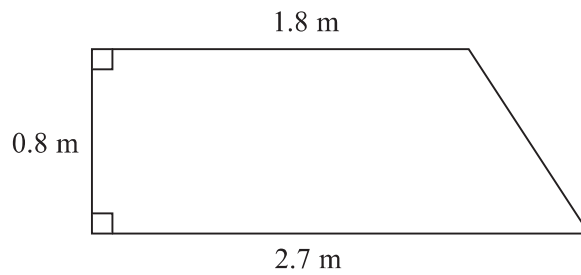y is inversely proportional to x

(Total for Question 4 is 2 marks)

P 6 4 6 3 4 A 0 1 0 2 4

5 The diagram shows a wall in the shape of a trapezium.

1.8 m

0.8 m

2.7 m

Karen is going to cover this part of the wall with tiles.
Each tile is rectangular, 15 cm by 7.5 cm

Tiles are sold in packs.
There are 9 tiles in each pack.

Karen divides the area of this wall by the area of a tile to work out an estimate for the number of tiles she needs to buy.

(a) Use Karen's method to work out the estimate for the number of packs of tiles she needs to buy.

....

(5)

Karen is advised to buy 10% more tiles than she estimated.
Buying 10% more tiles will affect the number of the tiles Karen needs to buy.

She assumes she will need to buy 10% more packs of tiles.

(b) Is Karen's assumption correct?
You must show your working.

(2)

(Total for Question 5 is 7 marks)

6 Factorise $x^2 + 3x - 4$

....

(Total for Question 6 is 2 marks)

7 Here are the equations of four straight lines.

Line A $y = 2x + 4$
Line B $2y = x + 4$
Line C $2x + 2y = 4$
Line D $2x - y = 4$

Two of these lines are parallel.

Write down the two parallel lines?

Line .... and line..........................

(Total for Question 7 is 1 mark)

8 Ian invested an amount of money at 3% per annum compound interest.
At the end of 2 years the value of the investment was £2652.25

(a) Work out the amount of money Ian invested.

£...

(3)

Noah has an amount of money to invest for five years.

Saver Account	Investment Account
4% per annum compound interest.	21% interest paid at the end of 5 years.

Noah wants to get the most interest possible.

(b) Which account is best?
You must show how you got your answer.

(2)

(Total for Question 8 is 5 marks)