Entrance to year 2 sample questions (calculator required)

Number

Q1.

Work out the value of $\dfrac{\sqrt{7.4}}{9.8 - 2.1}$ Give your answer to 2 significant figures

Q2.

Show that $4\dfrac{2}{3} \div 3\dfrac{5}{9} = 1\dfrac{5}{16}$

Q3.

Write down all the factors of 20

Q4.

Lisa sees a dress in a sale.
The normal price of the dress is $45
The price of the dress is reduced by 12% in the sale.

(a) Work out the price of the dress in the sale

Lisa's weekly pay increases from $525 to $546

(b) Calculate her percentage pay increase.

(c) Lisa's car is now worth $2000, which is 20% less than last year. How much was the car worth last year?

Q5.

The perimeter of a triangle is 90 cm.
 The lengths of the sides of the triangle are in the ratios 3 : 5 : 7.
Work out the length of the longest side of the triangle.

Q6.

a) A photocopier can make 50 copies in 3 minutes. How long would it take to make 125 copies?

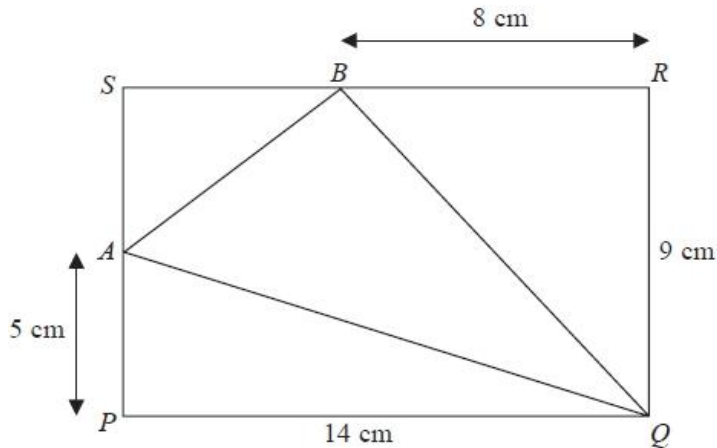b) 3 men take 10 hours to build a wall. How long would it take 5 men to build the same wall?

Geometry

Q1.

The diagram shows a rectangle *PQRS*.
PQ = 14 cm and *QR* = 9 cm.
The point *A* lies on *PS* so that *PA* = 5 cm.
The point *B* lies on *SR* so that *BR* = 8 cm.

8 cm

Diagram **NOT**
accurately drawn
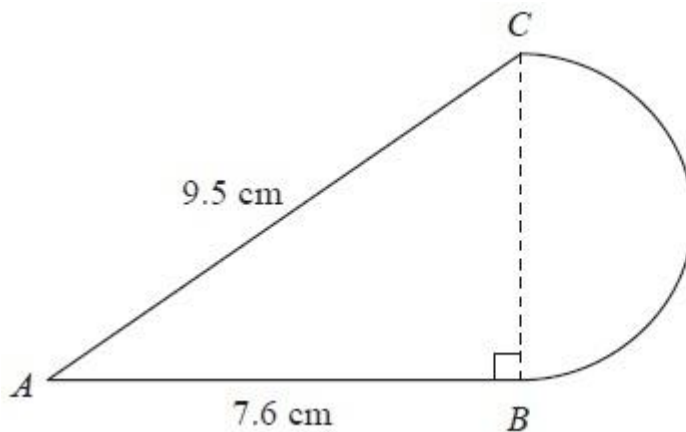
S   *B*   *R*

9 cm

A

5 cm

P   14 cm   *Q*

(a)   Work out the area of triangle *APQ*.

(b)   Work out the length of *AQ*.
Give your answer correct to 3 significant figures.

c) Work out the area of triangle ABQ.

Q2.

C

Diagram **NOT**
accurately drawn

9.5 cm

A

7.6 cm   *B*

The diagram shows a shape made from triangle *ABC* and a semicircle with diameter *BC*.
Triangle *ABC* is right-angled at *B*.
AB = 7.6 cm and *AC* = 9.5 cm.

a) Show that BC = 5.7 cm

b) Calculate the area of the shape.
Give your answer correct to 3 significant figures.

Algebra

Q1.

(a) Simplify $8e + 2f - 11e + 3f$

(b) Expand $2y(3y - 7)$

(c) Solve $4x + 5 = 17 - x$

(d) Find x and y , if $2x + y = 4$ and $3x - 2y = -1$

(e) Factorise $3x^2y + 6xy^2$

(f) Expand and simplify $(3x - 5)^2$

(g) Make x the subject of $5 + 2x = t$

Q2.

Here is a sequence of patterns made from short sticks and long sticks.
The short sticks make squares and the long sticks are diagonals of the squares.

Pattern number 1   Pattern number 2   Pattern number 3

(a) Complete the table.

Pattern number	1	2	3	4	5
Total number of sticks	5	9	13		

(b) Find the total number of sticks in Pattern number 7

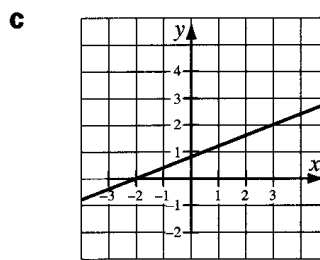This square has a **down** diagonal
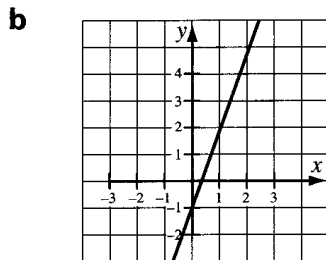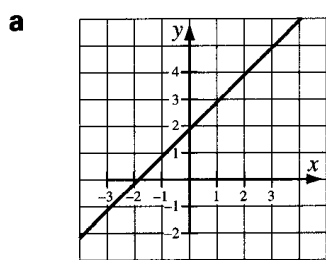
This square has an **up** diagonal

(c) Work out the number of **short** sticks in Pattern number 12

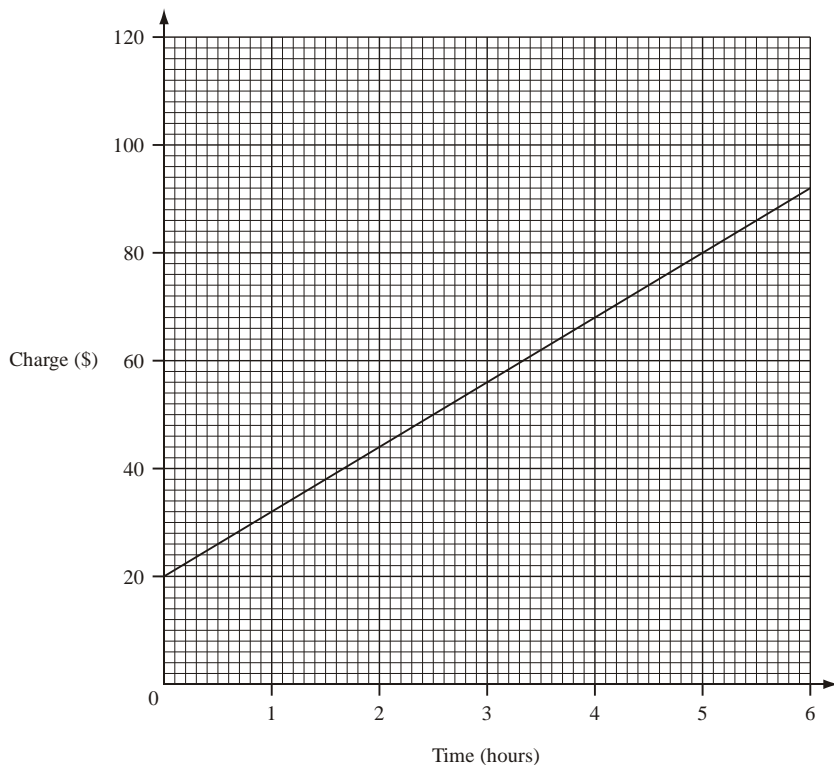(d) How many **up** diagonals are there in Pattern number 21?

Graphs

Q1.

Give the equation of each of these lines.

a

b

c

Q2.

The graph below shows the amount a plumber charges for up to 6 hours work.

Time (hours)

(a)   How much does he charge for $3\frac{1}{2}$ hours, work?

(b)   The plumber charged $50.
        How many hours did he work?

(c)   Another plumber charges $16 per hour.

        (i)   Draw a line on the grid above to show his charges. Start your line at (0,0).

        (ii)   Write down the number of hours for which the two plumbers charge the same amount.

                                        Answer (c)(ii) ……………..………… hours

Data

Q1.

The average weight of a flock of 10 sheep is 100kg. When a new sheep joins the flock the average increases to 102kg. How much did the new sheep weigh?