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- 9 A bag of 11 counters contains
- 3 purple counters
 - 2 orange counters
 - 6 white counters

A counter is going to be taken at random from the bag.

(a) Find the probability that the counter will be

(i) orange

.....

(ii) not white

.....

(iii) green

.....

(3)

- A box of 12 toy cars contains
- 3 red cars
 - 4 blue cars
 - 5 yellow cars

Some extra **red** cars are put in the box.

When a car is taken at random from the box, the probability that the car is yellow is $\frac{1}{6}$

(b) Work out the number of extra red cars that are put in the box.

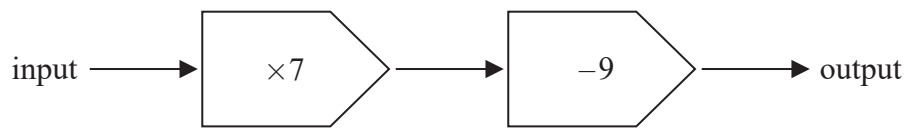
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(2)

(Total for Question 9 is 5 marks)



10 Here is a number machine.



(a) Work out the output when the input is 8

.....
(1)

(b) Work out the input when the output is 82

.....
(2)

The input is y .

(c) Find an expression, in terms of y , for the output.

.....
(2)

(Total for Question 10 is 5 marks)

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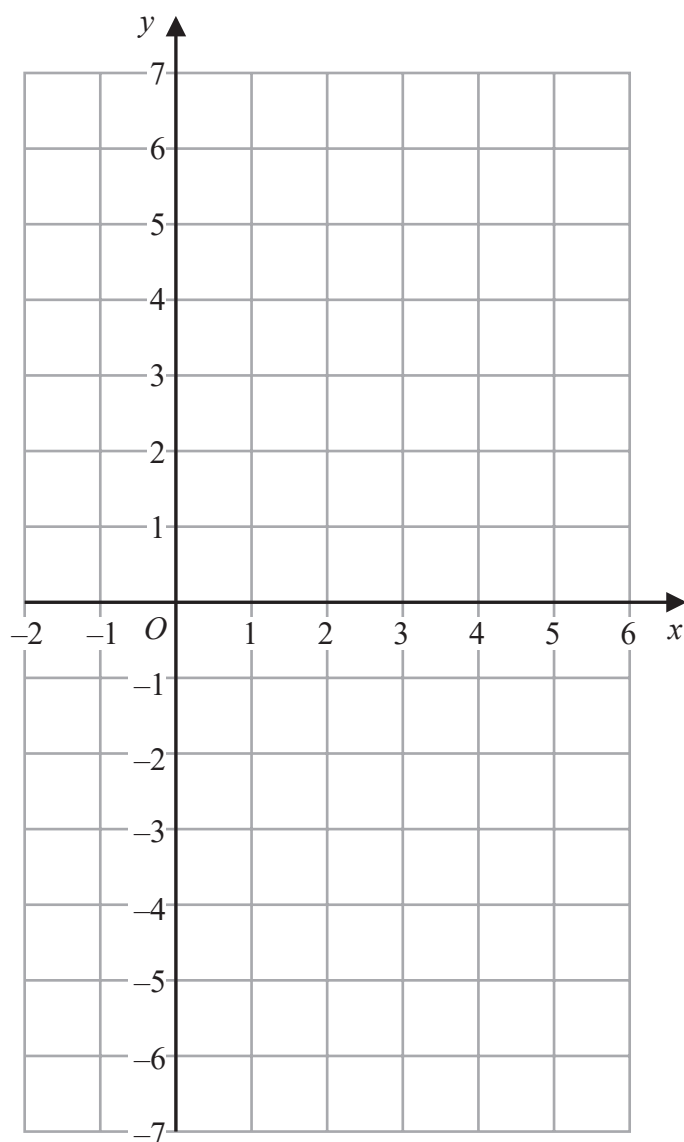


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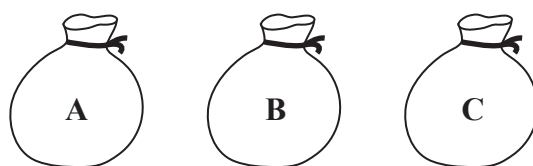
11 On the grid, draw the graph of $y = 2x - 3$ for values of x from -1 to 5



(Total for Question 11 is 3 marks)



12 Three bags, A, B and C, each contain some marbles.



There is a total of 75 marbles in the three bags.

$\frac{1}{5}$ of the marbles are in bag A.

There are 4 more marbles in bag B than in bag C.

Work out the number of marbles in each bag.

Bag A

Bag B

Bag C

(Total for Question 12 is 3 marks)

13 Potatoes cost 2 dollars per kg.

Carrots cost 3 dollars per kg.

Alfred buys p kg of potatoes and c kg of carrots.

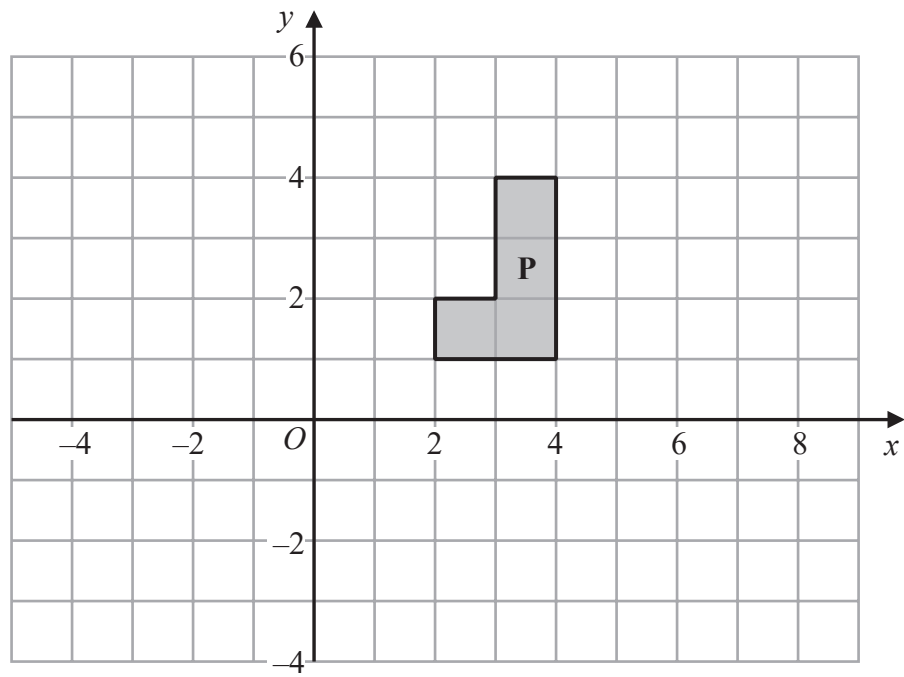
The total cost is T dollars.

Write down a formula for T in terms of p and c .

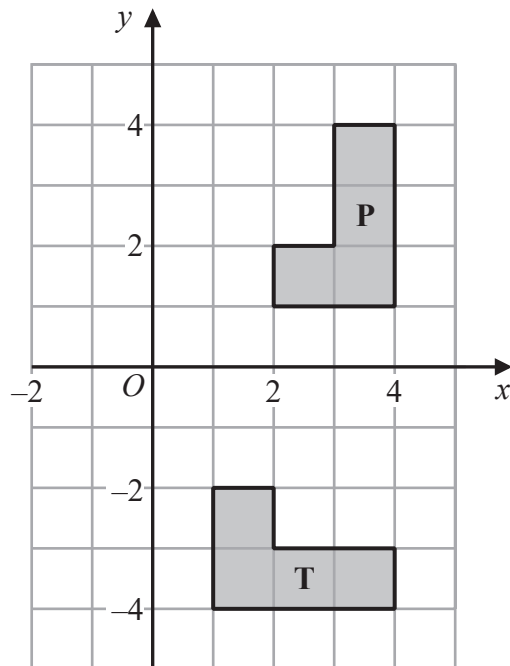
.....
(Total for Question 13 is 3 marks)



14



- (a) On the grid above, translate shape **P** by the vector $\begin{pmatrix} -5 \\ 2 \end{pmatrix}$ (1)



- (b) Describe fully the single transformation that maps shape **P** onto shape **T**.

(3)

(Total for Question 14 is 4 marks)



15 The diagram shows a cylinder.

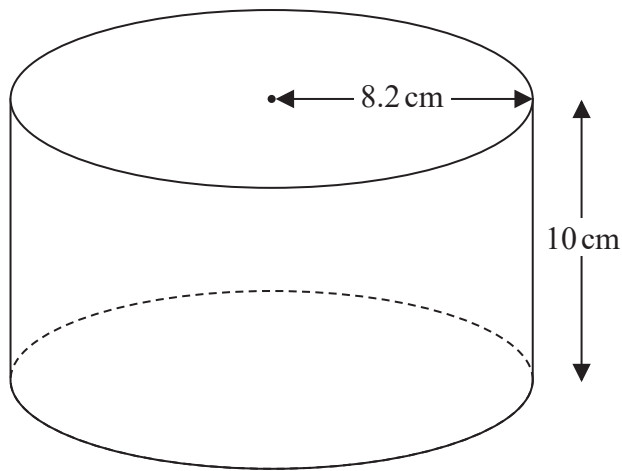


Diagram **NOT** accurately drawn

The cylinder has radius 8.2 cm and height 10 cm.
The cylinder is empty.

Pam pours 1.5 litres of water into the cylinder.

Work out the depth of the water in the cylinder.
Give your answer correct to 1 decimal place.

.....cm

(Total for Question 15 is 3 marks)

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16 Each interior angle of a regular polygon is 162°

Work out the number of sides the polygon has.

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(Total for Question 16 is 3 marks)

