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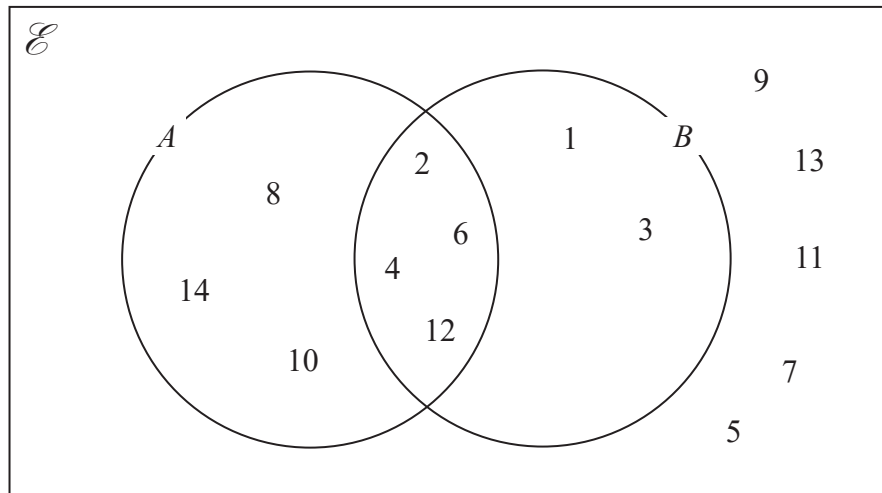
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Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The numbers from 1 to 14 are shown in the Venn diagram.



(a) List the members of the set  $A \cap B$

.....  
(1)

(b) List the members of the set  $B'$

.....  
(1)

A number is picked at random from the numbers in the Venn diagram.

(c) Find the probability that this number is in set A but is **not** in set B.

.....  
(2)

(Total for Question 1 is 4 marks)



- 2 Toy cars are made in a factory.  
The toy cars are made for 15 hours each day.  
5 toy cars are made every 12 seconds.

For the toy cars made each day, the probability of a toy car being faulty is 0.002

Work out an estimate of the number of faulty toy cars that are made each day.

.....  
(Total for Question 2 is 4 marks)

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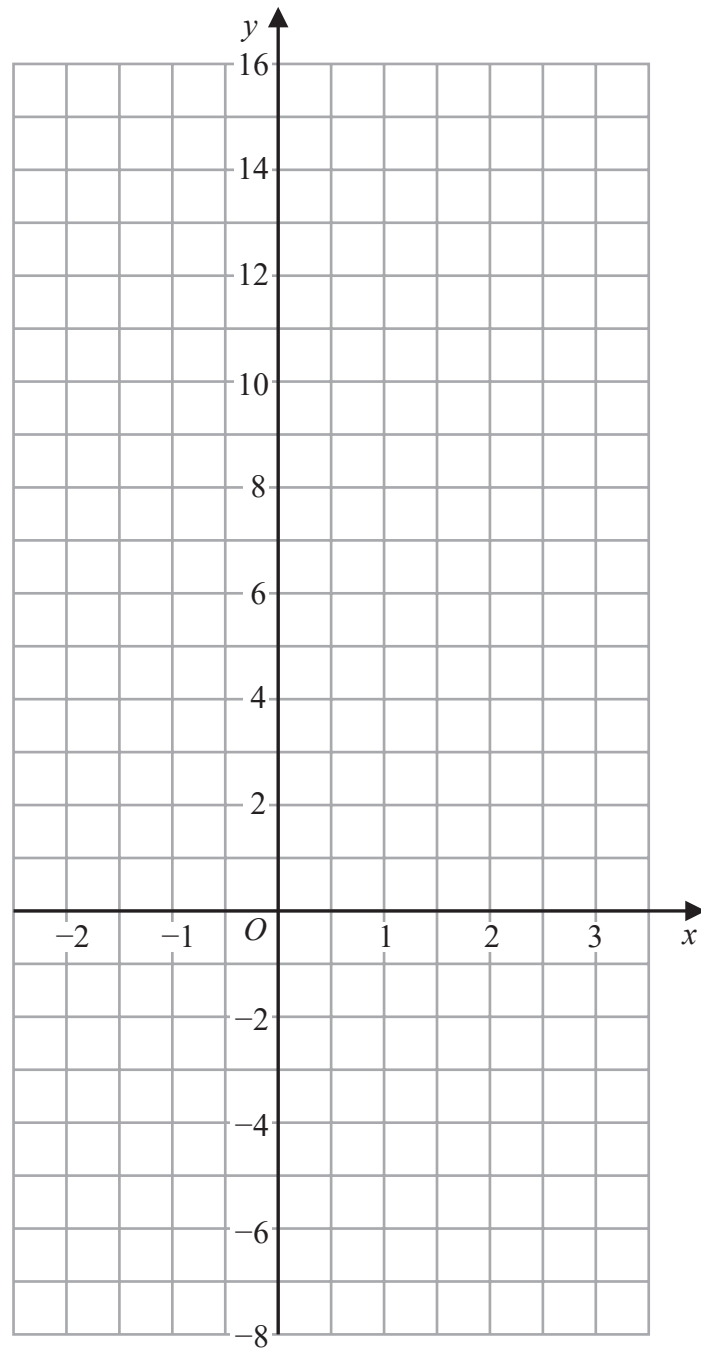


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3 On the grid, draw the graph of  $y = 7 - 4x$  for values of  $x$  from  $-2$  to  $3$



(Total for Question 3 is 3 marks)



4 Here is a list of six numbers written in order of size.

4      7       $x$       10       $y$        $y$

The numbers have

a median of 9

a mean of 11

Find the value of  $x$  and the value of  $y$ .

$x =$  .....

$y =$  .....

**(Total for Question 4 is 4 marks)**



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5 (a) Write  $5.7 \times 10^{-3}$  as an ordinary number.

.....  
(1)

(b) Write 800 000 in standard form.

.....  
(1)

(c) Work out  $\frac{3 \times 10^5 - 2.7 \times 10^4}{6 \times 10^{-2}}$

.....  
(2)

**(Total for Question 5 is 4 marks)**

6 A rocket travelled 100 km at an average speed of 28 440 km/h.

Work out how long it took the rocket to travel the 100 km.  
Give your answer in seconds, correct to the nearest second.

..... seconds

**(Total for Question 6 is 3 marks)**



7 (a) Solve  $5(4 - x) = 7 - 3x$   
Show clear algebraic working.

$x =$  .....  
(3)

(b) Factorise fully  $16m^3g^3 + 24m^2g^5$

.....  
(2)

(c) (i) Factorise  $y^2 - 2y - 48$

.....  
(2)

(ii) Hence, solve  $y^2 - 2y - 48 = 0$

.....  
(1)

(Total for Question 7 is 8 marks)



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8 Here is a 10-sided polygon.

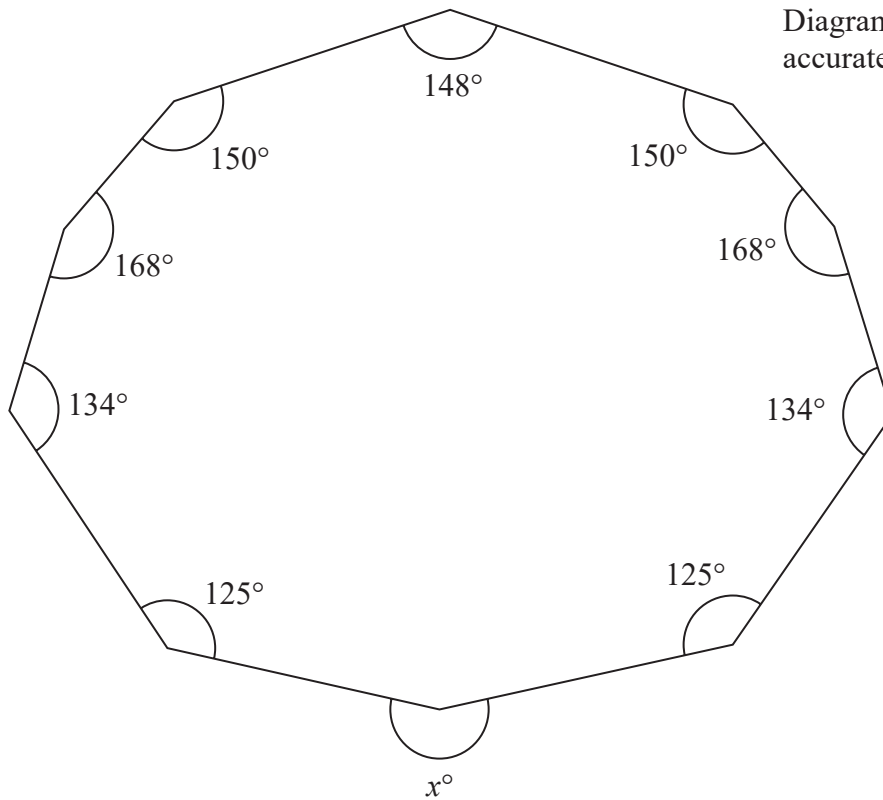


Diagram **NOT** accurately drawn

Work out the value of  $x$ .

$x = \dots\dots\dots$

(Total for Question 8 is 4 marks)



9 In a sale, normal prices are reduced by 20%

A bag costs 1080 rupees in the sale.

Work out the normal price of the bag.

..... rupees

(Total for Question 9 is 3 marks)

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10  $A = 2 \times 3^{43}$   
 $B = 16 \times 3^{37}$

(a) Find the highest common factor (HCF) of  $A$  and  $B$ .

.....  
(1)

(b) Express the number  $A \times B$  as a product of powers of its prime factors.  
Give your answer in its simplest form.

.....  
(2)

(Total for Question 10 is 3 marks)

