



Answer all questions in the spaces provided.

Do not write  
outside the  
box

1 How many centimetres are there in 4.2 metres? Circle your answer

[1 mark]

0.042

0.42

42

420

2 Circle the fraction that is not equivalent to  $\frac{2}{9}$

[1 mark]

$\frac{4}{18}$

$\frac{6}{27}$

$\frac{8}{36}$

$\frac{10}{27}$

3 Simplify  $6a - (2a + 8)$ . Circle your answer

[1 mark]

$6a + 8$

$4a$

$4a - 8$

$-4a$

4 a) Solve  $x - 6 = 20$ ; Find the value of  $x$

[1 mark]

Answer \_\_\_\_\_

4 b) Solve  $5y = 50$ ; Find the value of  $y$

[1 mark]

\_\_\_\_\_  
\_\_\_\_\_

Answer \_\_\_\_\_

4 c) Solve  $6 + Z = 12$ ; Find the value of  $Z$

[1 mark]

\_\_\_\_\_  
\_\_\_\_\_

Answer \_\_\_\_\_

Turn over for the next question

- 5 Red yellow and green balls are put in a bag. The probability of taking out each colour of ball is given in the table.

Red	Yellow	Green
0.1	0.3	

- 5 (a) Calculate the probability of taking out a green ball.

[1 mark]

Answer \_\_\_\_\_

- 5 (b) which colour is the most likely to be taken out ?

[1 mark]

Answer \_\_\_\_\_

- 5 (c) There are 60 balls in the bag. How many of them are red, yellow and green?

[1 mark]

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Answer \_\_\_\_\_



- 6 White paint costs £2.80 per litre.  
Red paint cost £3.50 per litre.  
White paint and red paint are mixed in the ratio 3 : 2.  
Workout the cost of 18 litres of the mixture.

[4 marks]

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Answer £ \_\_\_\_\_

- 7 Here are three expressions.  
 $b/a$   $ab$   $a-b$   
when  $a = 4$  and  $b = -8$  which expression has the smallest value ?  
you must show your working.

[2 marks]

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Answer \_\_\_\_\_

8 (a) Here are some properties of numbers.

- A Even
- B Odd
- C Square
- D Prime
- E Two - digit

which two properties does the number 10 have? circle the correct letters.

A      B      C      D      E

Answer

.....

[1 mark]

8 (b) Can one number have all of the properties? Tick a box

[2 marks]

Yes

No

Cannot tell

Give a reason for your answer.

Answer

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9 Workout 50% of 500

[1 mark]

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Answer \_\_\_\_\_

10 Here is a calculation.

$$456 \times 30 = 13\,680$$

Use the calculation to help answer the following questions.

10 (a) Write down the answer to  $13680 \div 456$

[1 mark]

Answer \_\_\_\_\_

10 (b) Circle the answer to  $512 \times 20$

[1 mark]

10240

1240

1024

12040



12 a) Workout  $9879 \div 11$ 

[2 marks]

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Answer \_\_\_\_\_

b) Workout  $\frac{5}{6} + \frac{2}{7}$ 

[3 marks]

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Answer \_\_\_\_\_

13 (a) write the first three terms of the sequence whose  $n$ th term is  $n^2 - 1$

[2 marks]

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13 (b) Find an expression for the  $n$ th term of the sequence which starts 13, 16, 19, 22, 25.

[2 marks]

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14 a) Complete the table of values for  $y = x^2$

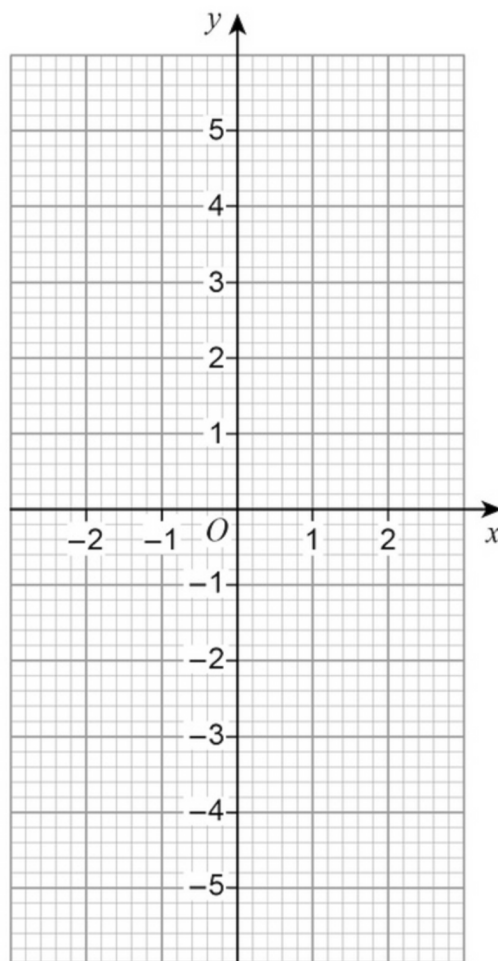
[1 mark]

Do not write outside the

x	-2	-1	0	1	2
y					

b) Draw the graph of  $y = x^2$  for values of  $x$  from -2 to 2

[2 marks]



14 c) Use your graph to estimate the value of  $\sqrt{2.6}$

[2 marks]

Answer \_\_\_\_\_

9
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Turn over ►

15 a) Simplify  $a^3 \times a^3$ 

[1 mark]

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b) Simplify  $\frac{m^3}{m^9}$ 

[1 mark]

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c) Simplify  $8^6 \times 2^4 \times 2$ . Give your answer as a power of 2

[2 marks]

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16 Solve  $\frac{2w}{15} = \frac{8}{5}$  [2 marks]

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$w =$  \_\_\_\_\_

17 a) Estimate  $-\sqrt{61}$  [1 mark]

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17 b) Calculate 20% of 60 [2 marks]

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17 c) Calculate  $\frac{2}{5}$  of 50

[2 marks]

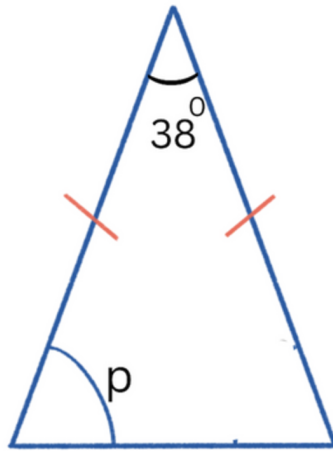
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18 Calculate the value of  $p$ . Give a reason for your answer.

[3 marks]



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- 19 Workout 2  $\frac{3}{4} \times 1 \frac{5}{7}$  Give your answer as a mixed number in it's simplest form

[3 marks]

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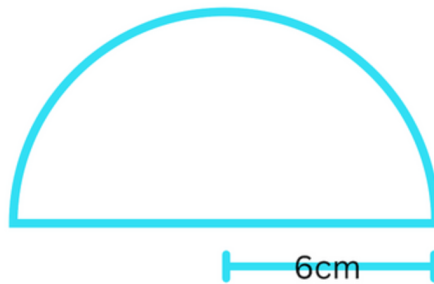


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- 20 The diagram shows a semicircle of radius 6 cms. [2 marks]  
Workout the area of semi-circle. Give your answer in terms of  $\pi$




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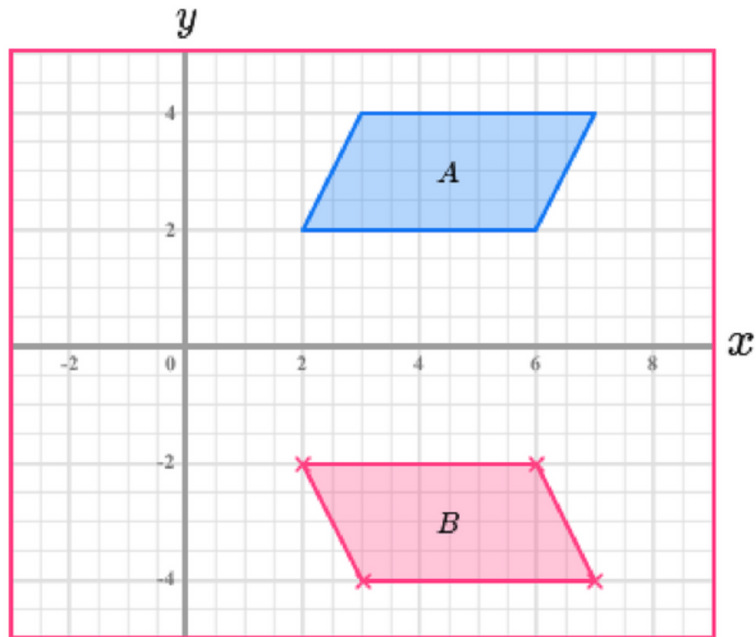


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Turn over ▶

21 Describe fully the single transformation that maps shape A onto shape B.

[2 marks]



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22

Find the modal class, the class interval in which the median lies and the estimated mean from this grouped frequency table

Speed $x$ mph	Frequency
$40 \leq t < 50$	4
$50 \leq t < 60$	8
$60 \leq t < 70$	10
$70 \leq t < 80$	3

a) Workout an estimate for the mean number of mph

[3 marks]

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Answer \_\_\_\_\_

Turn over for the next question

22 b) modal class

[1 mark]

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22 c) Median

[1 mark]

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23 Write 100 as a product of prime factors.

Give your answer in index form.

[3 marks]

Answer \_\_\_\_\_

24 Factorise  $x^2 + 7x + 10$

[2 marks]

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Answer \_\_\_\_\_

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Turn over ►

25 In a group of 98 students

25 study both French and D & T

10 study D & T but do not study French

41 study French.

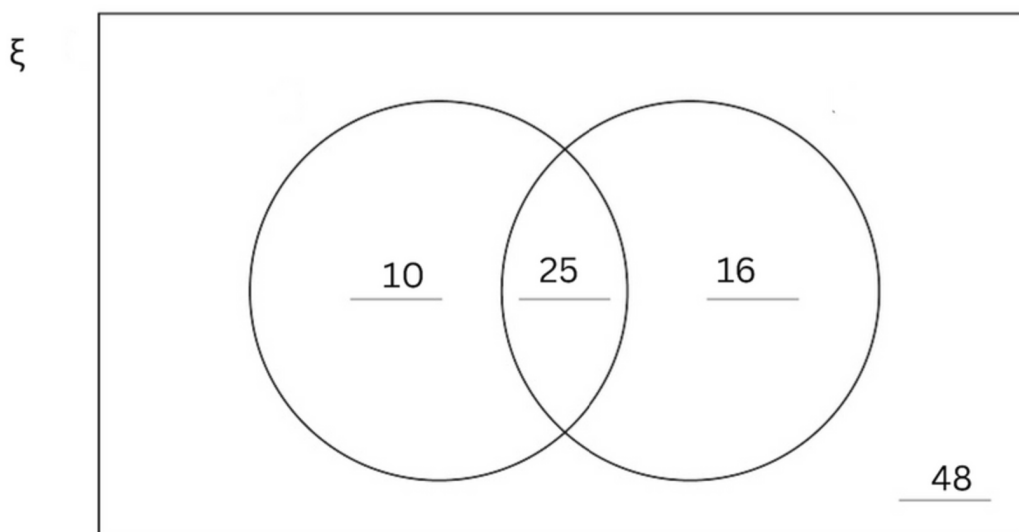
Marcus draws this venn diagram to represent the information.

[2 marks]

$\xi$  = the group of 98 students

A = the students who study D & T

F = the students who study French



Make two criticisms of his diagram

criticism 1

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criticism 2

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- 26 The ratio of cats to dogs in a pet shelter is 3:2.  
If there are 18 cats, how many dogs are there?

[2 marks]

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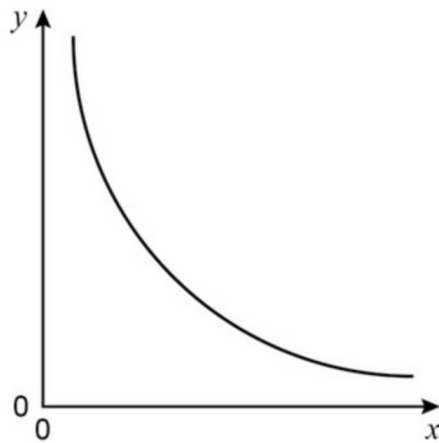
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Answer \_\_\_\_\_

- 27 Here is a sketch of a graph.



Circle the equation of the graph.

$k$  is a constant.

[1 mark]

$y = kx$

$y = k + x$

$y = k - x$

$y = \frac{k}{x}$

Turn over for the next question

Turn over ►

28 Decrease £200 by 15%.

[2 marks]

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29 Jessica tries to work out  $15.62 + 64.75 + 12.49$

[3 marks]

Her answer is 45.28

By rounding each number to the nearest 10, show that her answer is incorrect.

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END OF QUESTIONS