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Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Show that $3\frac{5}{7} \div 1\frac{5}{8} = 2\frac{2}{7}$

(Total for Question 1 is 3 marks)

2 Change a speed of 90 kilometres per hour to a speed in metres per second.
Show your working clearly.

..... m/s

(Total for Question 2 is 3 marks)



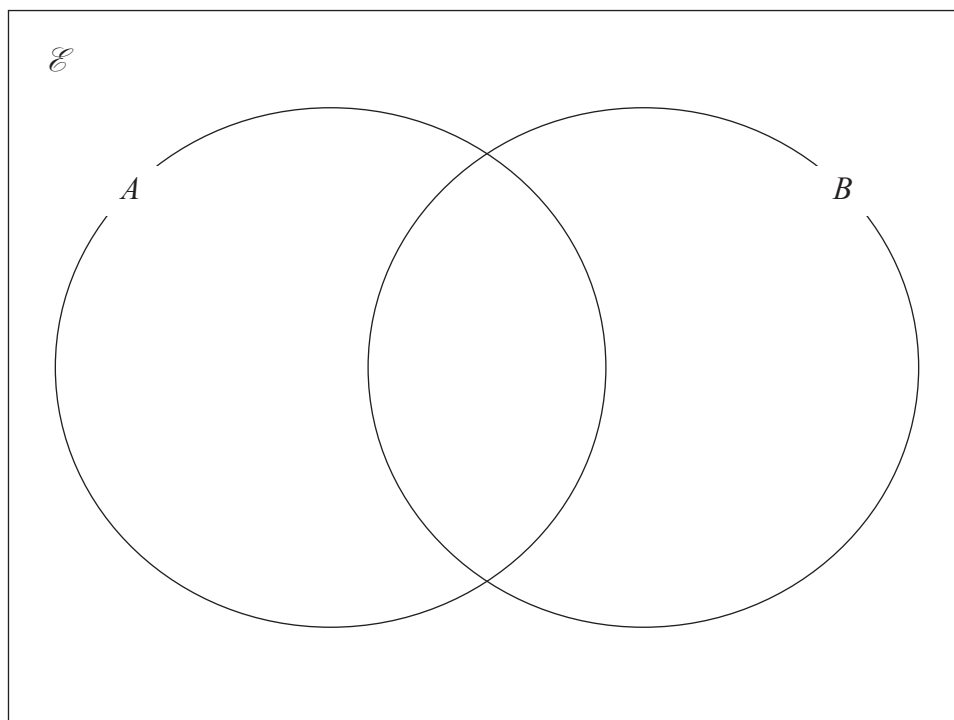
3 $\mathcal{E} = \{11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

$$A = \{\text{even numbers}\}$$

$$A \cap B = \{12, 16, 20\}$$

$$(A \cup B)' = \{17, 19\}$$

Complete the Venn diagram for the sets \mathcal{E} , A and B



(Total for Question 3 is 3 marks)



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4 The diagram shows rectangle $ABCD$

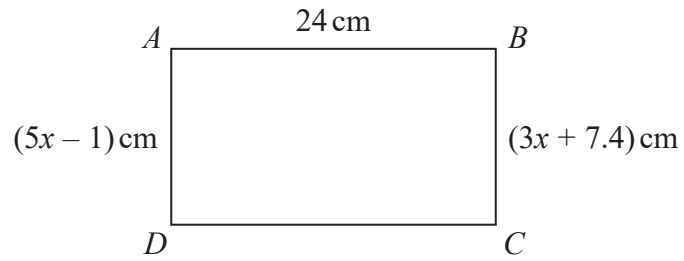


Diagram **NOT** accurately drawn

Work out the perimeter of the rectangle.
Show your working clearly.

..... cm

(Total for Question 4 is 4 marks)



P 7 2 4 4 3 A 0 5 2 8

5 The weight of a cake is 2.75 kg, correct to 2 decimal places.

(a) Write down the lower bound of the weight of the cake.

..... kg
(1)

(b) Write down the upper bound of the weight of the cake.

..... kg
(1)

Penny has worked out $\frac{81.3 \times 59.2}{1.9^2}$ on her calculator.

Her answer is 13 332.299 17

Penny's answer is not sensible.

(c) By rounding each number to one significant figure, work out a suitable estimate to show that her answer is not sensible.
Show your working clearly.

(2)

(Total for Question 5 is 4 marks)



6 The points A and B are on a coordinate grid.

The coordinates of A are $(6, 4)$

The coordinates of B are $(17, j)$ where j is a constant.

The midpoint of AB has coordinates $(k, 15)$ where k is a constant.

Find the value of j and the value of k

$$j = \dots\dots\dots$$

$$k = \dots\dots\dots$$

(Total for Question 6 is 3 marks)

7 Solve the simultaneous equations

$$5x + 4y = -2$$

$$2x - y = 4.4$$

Show clear algebraic working.

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total for Question 7 is 3 marks)



8 Matteo is going to invest 5000 Swiss francs for two years.

He can invest his money in Bank **G** or in Bank **H**.

Bank **G**
1.6% per year
compound interest

Bank **H**
2.9% interest added after
two years

The total amount of interest Matteo would receive at the end of two years from Bank **G** is more than the amount of interest Matteo would receive at the end of two years from Bank **H**.

How much more?

..... Swiss francs

(Total for Question 8 is 4 marks)



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9 (a) Write down the value of $(m + 2)^0$ where m is a positive integer.

.....
(1)

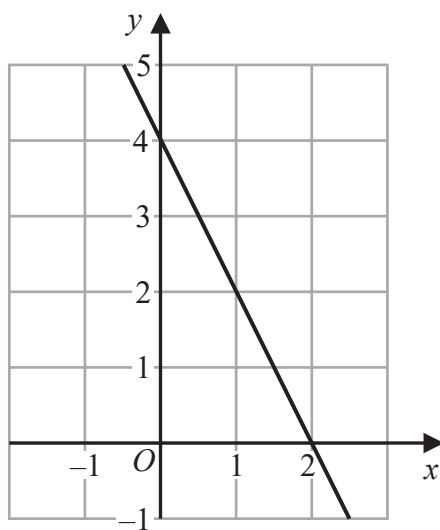
(b) Simplify $(3a^2b^4)^3$

.....
(2)

(c) Factorise fully $14x^2y^4 + 21x^3y^2$

.....
(2)

The diagram shows a straight line drawn on a grid.



(d) Write down an equation of the line.

.....
(2)

(Total for Question 9 is 7 marks)



10 The diagram shows an isosceles triangle, with base length 24 cm.

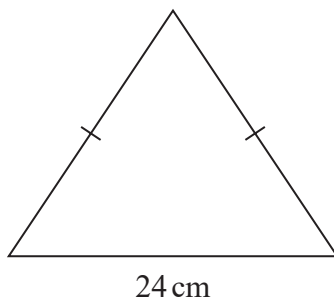


Diagram **NOT** accurately drawn

The perimeter of the triangle is 54 cm.

Work out the area of the triangle.

..... cm²

(Total for Question 10 is 5 marks)

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