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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 (a) Simplify $\frac{x^9}{x^2}$

..... (1)

(b) Write $\frac{7^8 \times 7^4}{7^3}$ as a single power of 7

..... (2)

(Total for Question 1 is 3 marks)

2 Change 32.4 m³ into cm³

..... cm³

(Total for Question 2 is 2 marks)



3 Show that $4\frac{2}{3} + 3\frac{4}{5} = 8\frac{7}{15}$

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(Total for Question 3 is 3 marks)



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4 The diagram shows a triangle.

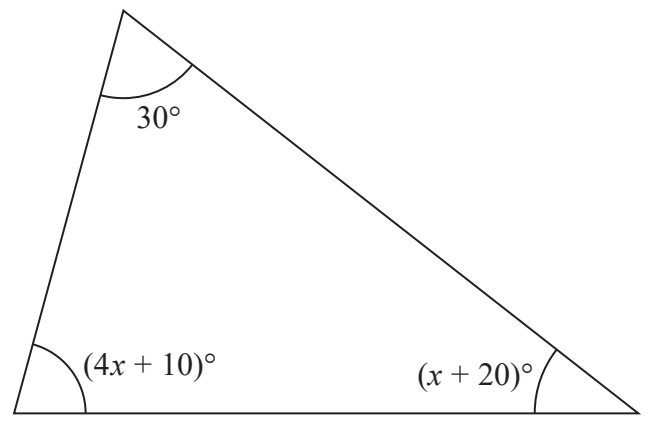


Diagram NOT accurately drawn

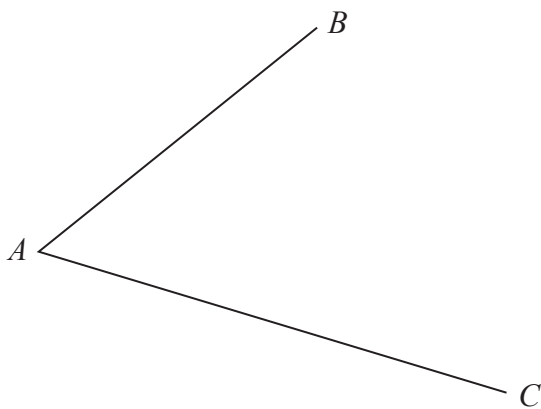
Work out the value of x .

$x = \dots\dots\dots$

(Total for Question 4 is 4 marks)



- 5 Use ruler and compasses to construct the bisector of angle BAC .
You must show all your construction lines.



(Total for Question 5 is 2 marks)

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6 A bag contains only red beads, blue beads, green beads and yellow beads.

The table gives the probabilities that, when a bead is taken at random from the bag, the bead will be blue or the bead will be yellow.

Colour	red	blue	green	yellow
Probability		0.24		0.31

The probability that the bead will be green is twice the probability that the bead will be red.

Sofia takes at random a bead from the bag.

She writes down the colour of the bead and puts the bead back into the bag.

She does this 180 times.

Work out an estimate for the number of times she takes a red bead from the bag.

.....
(Total for Question 6 is 4 marks)



7 (a) Solve the inequality $2x + 7 > 4$

.....
(2)

(b) Solve $x^2 - 3x - 40 = 0$
Show clear algebraic working.

.....
(3)

(Total for Question 7 is 5 marks)



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8 The table shows the cost, in euros, of Brigitte’s car insurance in each of the years 2016, 2017 and 2018

Year	2016	2017	2018
Cost of insurance (euros)	500	545	592

Brigitte says,

“The percentage increase in the cost of my car insurance from 2017 to 2018 is more than the percentage increase in the cost of my car insurance from 2016 to 2017”

(a) Is Brigitte correct?
You must show how you get your answer.

(4)

Henri wants to insure his car.

He gets a discount of 15% off the normal price.

Henri pays 952 euros for his car insurance after the discount.

(b) Work out the discount that Henri gets.

..... euros

(3)

(Total for Question 8 is 7 marks)



- 9 The density of gold is 19.3 g/cm^3
A gold bar has volume 150 cm^3

Work out the mass of the gold bar.

..... g

(Total for Question 9 is 2 marks)

- 10 Change a speed of 50 metres per second to a speed in kilometres per hour.

..... kilometres per hour

(Total for Question 10 is 3 marks)

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- 11 The diagram shows a shaded shape $ABCD$ made from a semicircle ABC and a right-angled triangle ACD .

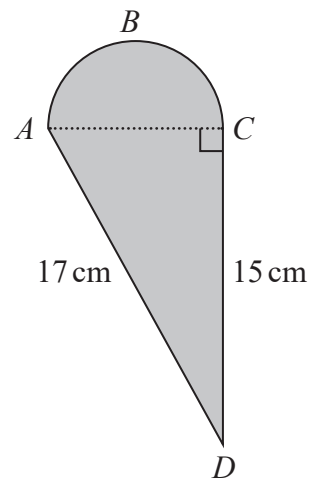


Diagram NOT accurately drawn

AC is the diameter of the semicircle ABC .

Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 11 is 5 marks)

