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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 diagram shows a cylinder.

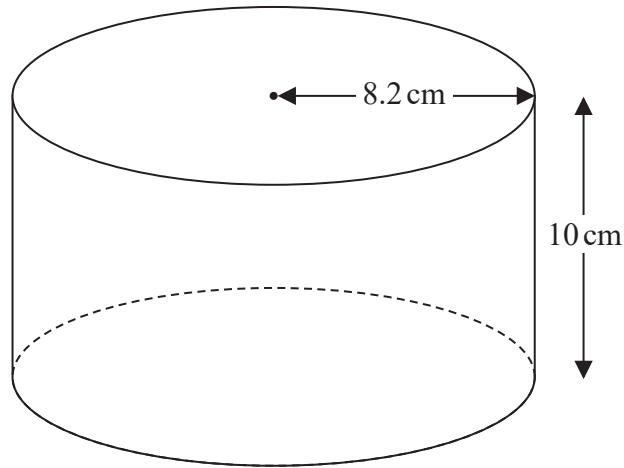


Diagram **NOT** accurately drawn

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 1 is 3 marks)



2 Each interior angle of a regular polygon is 162°

Work out the number of sides the polygon has.

.....
(Total for Question 2 is 3 marks)

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- 3 $\mathcal{E} = \{11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$
 $A = \{\text{even numbers}\}$
 $B = \{\text{multiples of 3}\}$

List the members of the set

(i) $A \cap B$

.....

(ii) $A \cup B$

.....

(iii) A'

.....

(Total for Question 3 is 3 marks)

4 Solve $4x - 13 = 17 + 8x$

$x = \dots\dots\dots$

(Total for Question 4 is 2 marks)



- 5 (a) Write 720 as a product of its prime factors.
Show your working clearly.

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.....
(3)

- (b) Find the smallest whole number that 720 can be multiplied by to give a square number.

.....
(1)

(Total for Question 5 is 4 marks)

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6 Lorenzo increases all the prices on his restaurant menu by 8%

Before the increase, the price of a dessert was \$4.25

(a) Work out the price of the dessert after the increase.

\$
(3)

After the increase, the price of lasagne is \$9.45

(b) Work out the price of lasagne before the increase.

\$
(3)

(Total for Question 6 is 6 marks)



7 The diagram shows isosceles triangle ABC .

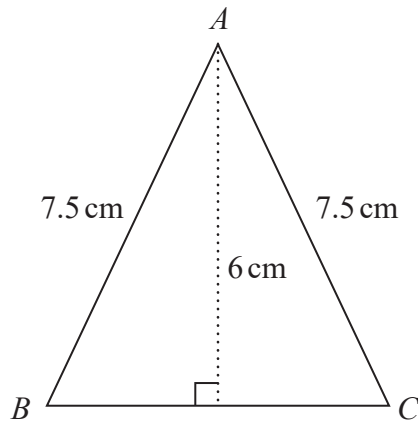


Diagram **NOT** accurately drawn

$$AB = AC = 7.5 \text{ cm.}$$

The height of the triangle is 6 cm .

Calculate the area of the triangle.

..... cm^2

(Total for Question 7 is 4 marks)

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8 There are 10 people in a lift.
These 10 people have a mean weight of 79.2 kg.

3 of these people get out of the lift.
These 3 people have a mean weight of 68 kg.

Work out the mean weight of the 7 people left in the lift.

.....kg

(Total for Question 8 is 3 marks)

9 (a) Simplify $t^9 \div t^3$

.....
(1)

(b) Simplify $w^5 \times w^7$

.....
(1)

(c) Simplify $(5xy^2)^3$

.....
(2)

(Total for Question 9 is 4 marks)



- 10 Change 22 metres per second to a speed in kilometres per hour.
Show your working clearly.

.....km/h

(Total for Question 10 is 3 marks)

- 11 3 years ago, the ratio of Tom's age to Clemmie's age was 2 : 7
Tom is now 15 years old and Clemmie is now x years old.

Find the value of x .

$x =$

(Total for Question 11 is 3 marks)

