

19 The diagram shows a container for water in the shape of a prism.

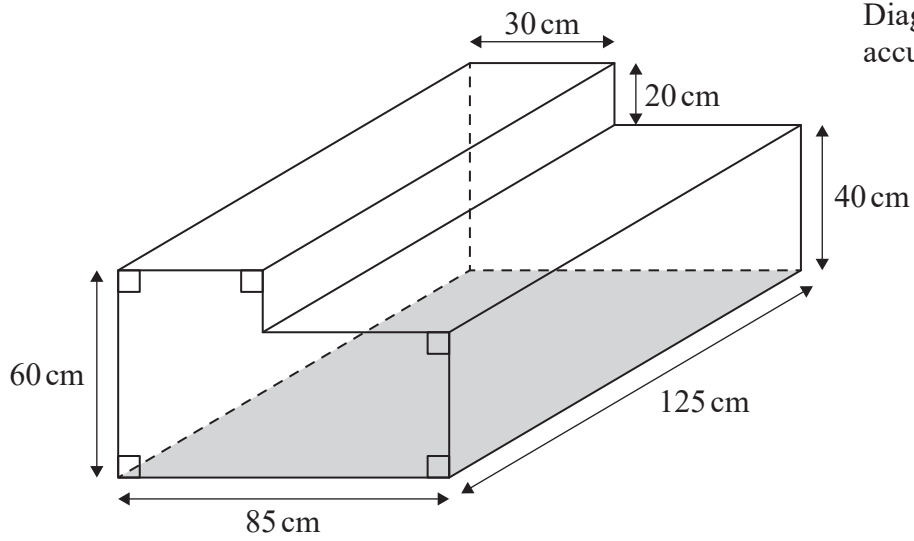


Diagram NOT accurately drawn

The rectangular base of the prism, shown shaded in the diagram, is horizontal. The container is completely full of water.

Tuah is going to use a pump to empty the water from the container so that the volume of water in the container decreases at a constant rate.

The pump starts to empty water from the container at 10 30 and at 12 00 the water level in the container has dropped by 20 cm.

Find the time at which all the water has been pumped out of the container.

(Total for Question 19 is 4 marks)



20 $\mathcal{E} = \{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$

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

$B = \{\text{multiples of 3}\}$

List the members of the set

(i) $A \cap B$

.....
(1)

(ii) $A \cup B$

.....
(1)

(Total for Question 20 is 2 marks)



21 (a) Factorise fully $15y^4 + 20uy^3$

.....
(2)

(b) Solve $4 - 3x = \frac{5 - 8x}{4}$

Show clear algebraic working.

$x =$
(3)

(Total for Question 21 is 5 marks)

22 (a) Write 2 840 000 000 in standard form.

.....
(1)

(b) Write 2.5×10^{-4} as an ordinary number.

.....
(1)

(Total for Question 22 is 2 marks)



23 Chen invests 40 000 yuan in a fixed-term bond for 3 years.

The fixed-term bond pays compound interest at a rate of 3.5% each year.

- (a) Work out the value of Chen's investment at the end of 3 years.
Give your answer to the nearest yuan.

..... yuan
(3)

Wang invested P yuan.

The value of his investment decreased by 6.5% each year.

At the end of the first year, the value of Wang's investment was 30 481 yuan.

- (b) Work out the value of P .

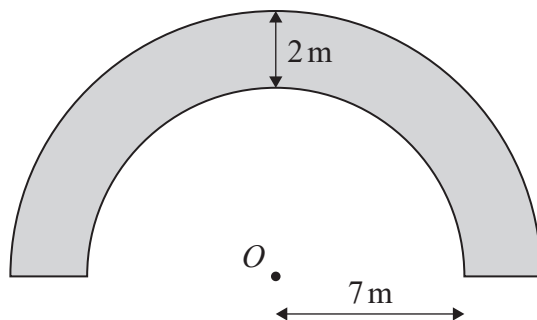
$P =$
(3)

(Total for Question 23 is 6 marks)



24 The region, shown shaded in the diagram, is a path.

Diagram **NOT** accurately drawn



The boundary of the path is formed by two semicircles, with the same centre O , and two straight lines.

The inner semicircle has a radius of 7 metres.

The path has a width of 2 metres.

Work out the perimeter of the path.

Give your answer correct to one decimal place.

..... m

(Total for Question 24 is 3 marks)

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25 (a) Simplify $(2x^3y^5)^4$

.....
(2)

(b) (i) Factorise $x^2 + 5x - 36$

.....
(2)

(ii) Hence, solve $x^2 + 5x - 36 = 0$

.....
(1)

(Total for Question 25 is 5 marks)



P 6 6 2 9 5 A 0 2 3 2 4

26 Here is isosceles triangle ABC .

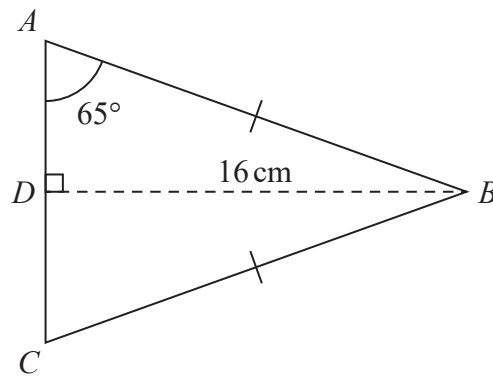


Diagram **NOT** accurately drawn

D is the midpoint of AC and $DB = 16$ cm.

Angle $DAB = 65^\circ$

Work out the perimeter of triangle ABC .
Give your answer correct to one decimal place.

..... cm

(Total for Question 26 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

