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Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Pieter owns a currency conversion shop.

Last Monday, Pieter changed a total of 20 160 rand into a number of different currencies.

He changed $\frac{3}{10}$ of the 20 160 rand into euros.

He changed the rest of the rands into dollars, rupees and francs in the ratios 9:5:2

Pieter changed more rands into dollars than he changed into francs.

Work out how many more.

..... rand

(Total for Question 1 is 4 marks)



2 The table gives information about the speeds, in kilometres per hour, of 80 motorbikes as each pass under a bridge.

Speed (s kilometres per hour)	Frequency
$40 < s \leq 50$	10
$50 < s \leq 60$	16
$60 < s \leq 70$	19
$70 < s \leq 80$	23
$80 < s \leq 90$	12

(a) Write down the modal class.

.....
(1)

(b) Work out an estimate for the mean speed of the motorbikes as they pass under the bridge.
Give your answer correct to 3 significant figures.

..... kilometres per hour
(4)

(Total for Question 2 is 5 marks)

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

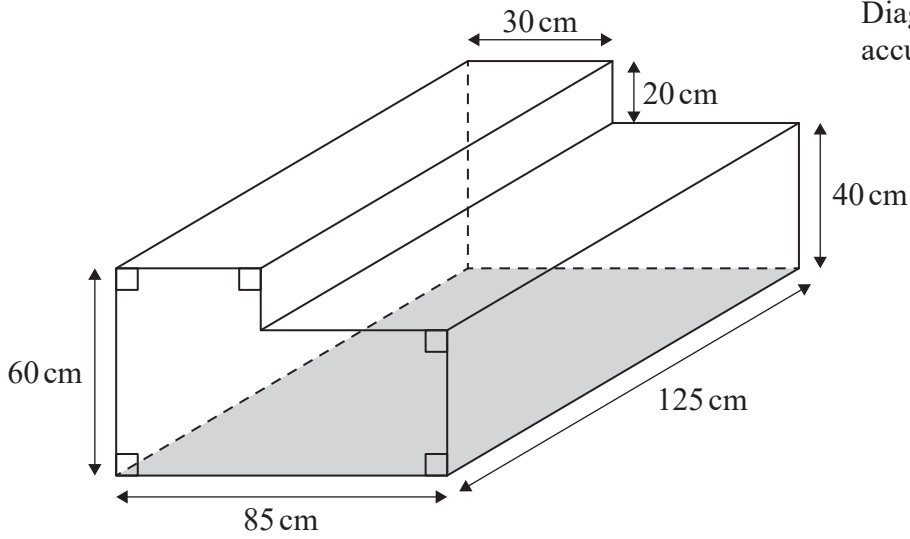


Diagram NOT accurately drawn

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 3 is 4 marks)



4 $E = \{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$

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

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

List the members of the set

(i) $A \cap B$

.....
(1)

(ii) $A \cup B$

.....
(1)

(Total for Question 4 is 2 marks)



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5 (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 5 is 5 marks)

6 (a) Write 284000000 in standard form.

.....
(1)

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

.....
(1)

(Total for Question 6 is 2 marks)



7 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 7 is 6 marks)



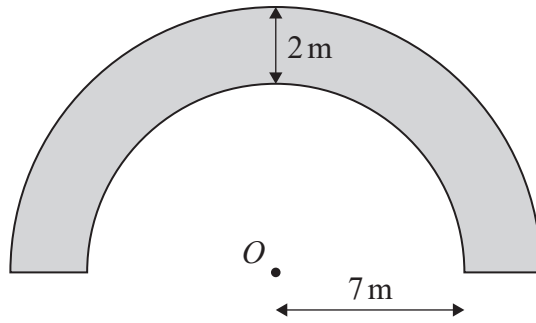
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8 The region, shown shaded in the diagram, is a path.

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 8 is 3 marks)



9 (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 9 is 5 marks)

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10 Here is isosceles triangle ABC .

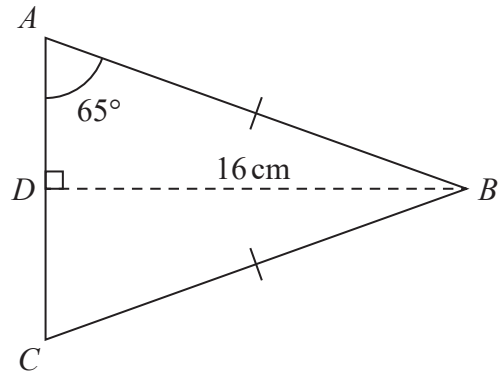


Diagram NOT accurately drawn

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 10 is 4 marks)

