Multiple choice section

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **Answer** | D | A | A | B | B | C | A | C | B |

Question 1 [6.1]

D

85 cm = 850 mm

Question 2 [6.2]

A

Perimeter

= 2 × 70 + 2 × 60

= 140 + 120

= 260 mm

= 26 cm

Question 3 [6.6]

A

V = l × h × w

V = 2 × 4 × 1

V = 8 cm3

Question 4 [6.3]

B

Area = length × length

49 = 7 × 7

length = 7 m

Question 5 [6.1]

B

Kilometres, all other measurements are too small.

Question 6 [6.1]

C

Convert all lengths to metres:

700 cm = 7 m, 7 km = 7000 m

Now place in ascending order (smallest to largest)

7 m, 7.7 m, 70 m, 7000 m

Convert all measurements back to their original form

700 cm, 7.7 m, 70 m, 7 km

Question 7 [6.3]

A

square millimetres

Question 8 [6.3]

C

Count the number of whole squares: 20

Combine remaining shaded area to form whole squares: 10

Add the two totals together: 20 + 10 = 30 cm2

Question 9 [6.4]

B

A = b × h

A= 11 × 5

A = 55 cm2

Multiple-choice total marks: 9

Short answer section

Question 10 3 marks [6.1, 6.4, 6.6]

(a) To convert from a larger unit of measurement to a smaller unit of measurement, you need to multiply.

(b) The area of a parallelogram is calculated by multiplying the base by the perpendicular height.

(c) The volume of a rectangular prism is the product of its length, width and height.

Question 11 3 marks [6.1]

(a) 12.903 km = 12903 m

(b) 76.4 mm = 7.64 cm

(c) 341 mm = 0.341 m

Question 12 2 marks [6.1]

41 m = 0.041 km = 0.04 km (2 d.p.)

2740 m = 2.74 km (2 d.p.)

Question 13 3 marks [6.1]

Convert all measurements to the same unit of measurement.

200 mm = 20 cm

5 days: Tuesday, Wednesday, Thursday, Friday and Saturday

5 × 15 = 75 cm

20 + 75 = 95 cm

The scarf will be 95 cm long at the end of Saturday.

Question 14 2 marks [6.2]

380 – 146 = 234 234 ÷ 2 = 117 mm

Question 15 3 marks [6.2]

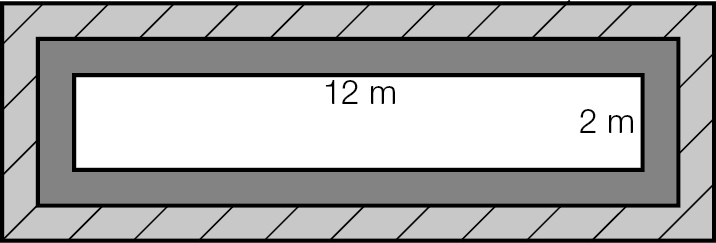
2x + x + 2x + x = 360

6x = 360

width = x = 60 cm

length = 2x = 120 cm

Question 16 3 marks [6.3]



Inside rectangle measures 12 × 2.

Pebble path (1 m wide from deck) measures 14 × 4.

Garden bed (2 m wide from path) measures 18 × 8.

A = l × w

A = 18 × 8

A = 144 m2

Question 17 2 marks [6.3]

|  |  |
| --- | --- |
| (a) A = s2 or A = l × w A = 1.2 × 1.2 A = 1.44 cm2 | (b) A = l × w A = 5.2 × 6 A = 31.2 cm2 |

Question 18 3 marks [6.3]

Width of the curtain = 0.5 × 3 = 1.5

Length of the curtain = 0.9 + 0.3 = 1.2

Area of material = l × w

A = 1.5 × 1.2

A = 1.8 m2

Question 19 2 marks [6.4]

A = l × w

72 = 8 × w

w = 72 ÷ 8

w = 9 cm

Question 20 4 marks [6.5]

Divide area into three parts using vertical lines. Convert all measurements to cm.

The ends of the top and bottom rectangle are 4 ÷ 2 = 2 cm (7 – 3 = 4 cm)

The top rectangle 15 × 2 = 30

The centre rectangle (15 – 9 = 6) = 6 x 3 = 18  
The bottom rectangle is the same as the top rectangle: 30

Total area = 30 + 18 + 30 = 78 cm2

Question 21 2 marks [6.5]

A = b × h

=  × 108 × 18.6

= 1004.4 mm2

Question 22 3 marks [6.5]

Divide the composite shape into three separate shapes using vertical lines noting that the two triangles have the same dimensions.

rectangle = 20 × 12 = 240 cm2

triangles = 2 × (× 12 × 10) = 2 × 6 × 10 = 2 × 60 = 120

Total Area = 240 + 120 = 360 cm2

Question 23 3 marks [6.5]

Area of outer rectangle:

A = 8 × 6 = 48 cm2

Area of one inner square:

A = 20 × 20 = 400 mm2

Area of the three white squares:

400 × 3 = 1200 mm2 or 12 cm2

Area of shaded rectangle = area of outer rectangle – area on inner squares

A = 48 – 12 = 36 cm2

Question 24 2 marks [6.6]

V = l × b × h

= 4 × 3 × 9

= 108 cm3

Question 25 3 marks [6.6]

V = l × b × h

105 = 7 × 5 × h

105 = 35 × h

h = 105 ÷ 35

h = 3 cm

Question 26 3 marks [6.5]

Area of table top = 900 × 900 = 810 000 mm2 or 8100 cm2

Area of tile = 2 × 2 = 4 cm2

Number of tiles required = area of table top (cm2) ÷ area of tile (cm2)

= 8100 ÷ 4

= 2025

2025 tiles are required to cover the table top.

Short answer total: 46

Extended answer section

Question 27 5 marks [6.6]

(a) Volume of one soap box = l × b × h  
= 150 × 60 × 110  
= 990 000 mm3  
Volume of large carton = number of soap boxes × volume of one soap box  
= 18 × 990 000  
= 17 820 000 mm3

(b) The height of one soap box is 110 mm. If the soap boxes are stacked 2 high, then the height of the carton is 110 × 2 = 220 mm  
There are 9 boxes in each layer.  
If the boxes are to be packed in two layers with 9 cartons in each layer and only one carton wide, the width of the carton is 60 × 9 = 540 mm  
V = l × w × h  
17 820 000 = l × 220 × 540  
17 820 000 = l × 118 800  
l = 17 820 000 ÷ 118 800  
l = 150 mm  
Possible dimensions of the cartoon are 220 mm × 540 mm × 150 mm  
Other solutions are possible. The soap boxes can be packed in two layers, with three rows of three boxes.

Question 28 3 marks [6.2, 6.3]

Other rectangles and squares that have the same numerical value for the perimeter and area:

|  |  |
| --- | --- |
| 4 × 4 square  P = 2l + 2w  P = (2 × 4) + (2 × 4)  P = 8 + 8  P = 16 cm  A = l × w  A = 4 × 4  A = 16 cm2 | 10 × 2.5 rectangle  P = 2l + 2w  P = (2 × 10) + (2 × 2.5)  P = 20 + 5  P = 25 cm  A = l × w  A = 10 × 2.5  A = 25 cm2 |

Question 29 4 marks [6.5]

(a) Canvas B is the best fit  
Width of 3 canvases is 120 × 3 = 360 cm  
With 10 cm gap between the two canvases and the walls adds an extra 40 cm to the width:   
360 + 40 = 400 cm

(b) A = l × w (using width from part (a))  
= 120 × 150 × 3  
= 54 000 cm2

Question 30 6 marks [6.2]

(a) Rectangle A measurements are 110 by 65 ÷ 2 = 32.5  
P = 2l + 2w  
P = 18 × [(2 × 110) + (2 × 32.5)]  
P = 18 × 285  
P = 5130 m

(b) Rectangle B measurements are 65 by 110 ÷ 2 = 55  
P = 2l + 2w  
P = 18 × [(2 × 55) + (2 × 65)]  
P = 18 × 240  
P = 4320 m

(c) Rectangle C measurements are 65 by 110  
P = 2l + 2w  
P = 18 × [(2 × 110) + (2 × 65)]  
P = 12 × 350  
P = 4200 m

Extended answer total: 18

TOTAL test marks: 73