Multiple choice section

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

Question 1 [6.1]

A

65 cm = 650 mm

Question 2 [6.2]

B

Perimeter = 2 × 7 + 2 × 6

= 26 cm

Question 3 [6.6]

A

V = l × h × w

= 2 × 4 × 1

= 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]

C

mm2

Question 8 [6.3]

D

20 + 10 = 30 cm2

Question 9 [6.4]

A

A = b × h

= 11 × 5

= 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, you 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 km = 12 000 m

(b) 764 mm = 76.4 cm

(c) 341 mm = 0.341 m

Question 12 2 marks [6.1]

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

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

Question 13 2 marks [6.1]

200 mm = 20 cm

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

5 × 15 = 75 cm

20 + 75 = 95 cm

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

Question 14 4 marks [6.2]

|  |  |
| --- | --- |
| (a) 22 cm = 220 mm  P = 2l + 2w = 2 × 220 + 2 × 84 = 440 + 168 = 608 mm or 60.8 cm  PM7_SmB_SSa6_01 | (b) P = 4l = 4 × 520 = 2080 mm  PM7_SmB_SSb6_02 |

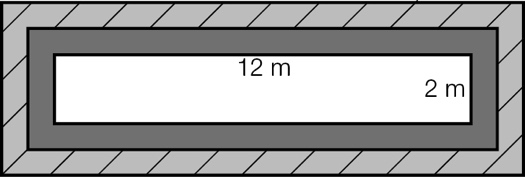
Question 15 2 marks [6.2]

State the lengths of all sides, including those not given.

4 + 5 + 2 + 1 + 5 + 1 + 3 + 3 = 24 cm

Question 16 3 marks [6.3]

Draw a diagram.



Inside rectangle measures 12 × 2

path (1 m wide from pool) measures 14 × 4

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

A = l × w

= 18 × 8

= 144 m2

Question 17 4 marks [6.3]

|  |  |
| --- | --- |
| (a) A = l2  = 1.22 = 1.44 cm2 | (b) A = l × w = 5.2 × 6 = 31.2 cm2 |

Question 18 3 marks [6.3]

Width of the curtain

= 0.9 × 3 = 2.7

Length of the curtain

= 1.5 + 0.3 = 1.8

Area of material

= l × w

= 2.7 × 1.8

= 4.86 m2

Question 19 2 marks [6.4]

A = bh (use the perpendicular height)

= 13 × 4

= 52 cm2

Question 20 3 marks [6.4]

A = bh

72 = 8 × h

h = 72 ÷ 8

h = 9 cm

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) = 120 cm2

Total area = 240 + 120 = 360 cm2

Question 23 3 marks [6.5]

Area of large rectangle = l × w

= 8 × 6

= 48 cm2

Area of one inner square = l × w

= 20 × 20

= 400 mm2

Area of the three inner squares = 400 × 3 = 1200 mm2 or 12 cm2

Shaded area = area of large rectangle – area of inner squares

= 48 – 12

= 36 cm2

Question 24 2 marks [6.6]

By counting the number of cubes:

Bottom layer = 8

Middle layer = 6

Top layer = 4

V = 8 + 6 + 4

= 18 cm3

Question 25 2 marks [6.6]

V = l × w × h

= 4 × 3 × 9

= 108 cm3

Question 26 3 marks [6.6]

V = l × w × h

105 = 7 × 5 × h

105 = 35 × h

h = 105 ÷ 35

h = 3 cm

Question 27 3 marks [6.5]

Area of table top = length × width

A = 900 × 900

= 810 000 mm2 or 8100 cm2

Area of tile = l × w

= 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: 49

Extended answer section

Question 28 5 marks [6.6]

(a) Volume of one soap box = l × w × 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) If the height of one soap box is 110 mm, and the boxes are stacked 2 high, then the height of the carton is: 110 × 2 = 220 mm   
If there are 9 boxes in each layer and the layers are set out 1 box wide and 9 boxes long.  
One possible dimensions is a width of: 60 mm × 9 = 540 mm  
length = 150 mm  
So one set of possible dimensions of the cartoon is:  
220 mm × 540 mm × 150 mm  
Other solutions are possible for example boxes can be packed in two layers, with three rows of three boxes so if the height was 220 then:  
l = 60 × 3 = 180 mm and w =150 × 3 = 450 mm  
180 mm × 450 mm × 220 mm

Question 29 2 marks [6.2, 6.3]

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

4 × 4 square

P = 2l + 2w

= (2 × 4) + (2 × 4)

= 16 cm

A = l × w

= 4 × 4

= 16 cm2

Or

10 × 2.5 rectangle

P = 2l + 2w

= (2 × 10) + (2 × 2.5)

= 25 cm

A = l × w

= 10 × 2.5

= 25 cm2

Other solutions may be possible.

Question 30 4 marks [6.3]

(a) Canvas B is the best fit and covers most of the wall.  
Width of three 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))  
A = 120 × 150 × 3   
A = 54 000 cm2

Extended answer total: 11

TOTAL test marks: 69