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 × 7) + (2 × 6)

= 26 cm

Question 3 [6.6]

A

8 cm3

Question 4 [6.3]

B

Area = length × length

36 = 6 × 6

length = 6 m

Question 5 [6.1]

B

Kilometres, all other measurements are too small.

Question 6 [6.1]

C

Convert all lengths to metres:

400 cm = 4 m, 4 km = 4000 m

Now place in ascending order (smallest to largest):

4 m, 4.4 m, 40 m, 4000 m

Convert all measurements back to their original form:

400 cm, 4.4 m, 40 m, 4 km.

Question 7 [6.3]

A

Millimetres

Question 8 [6.3]

C

Approximately 30 cm2

Question 9 [6.4]

B

A = bh

= 12 × 3

= 36 cm2

Multiple-choice total marks: 9

Short answer section

Question 10 3 marks [6.2, 6.5, 6.6]

(a) The area of a triangle is equal to half of the product of the base and the perpendicular height.

(b) The perimeter is the distance along the boundary of a shape.

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

Question 11 3 marks [6.1]

(a) 8 km = 8000 m

(b) 456 mm = 45.6 cm

(c) 152 mm = 0.152 m

Question 12 2 marks [6.1]

246.5 cm = 2.465 = 2.47 m (2 d.p.)

59.93 cm = 0.5993 = 0.60 m (2 d.p.)

Question 13 2 marks [6.1]

180 mm = 18 cm

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

5 × 25 = 125 cm

125 + 18 = 143 cm

The scarf will be 143 cm long at the end of Saturday.

Question 14 4 marks [6.2]

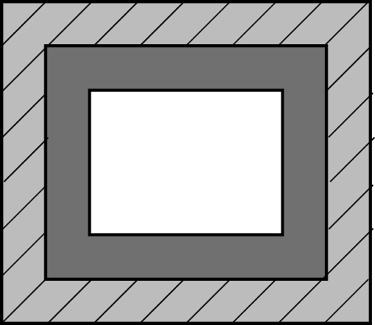
|  |  |
| --- | --- |
| (a) 22 cm = 220 mm  P = 2l + 2w P = 2 × 220 + 2 × 84 P = 440 + 168 P = 608 mm or 60.8 cm  PM7_SmB_SSa6_01 | (b)  P = 4l P = 4 × 360 P = 1440 mm PM7_SmB_SSa6_02 |

Question 15 2 marks [6.2]

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

4 + 7 + 2 + 14 + (14 – 4) + (7 – 2) = 4 + 7 + 2 + 14 + 10 + 5 = 42 m

Question 16 3 marks [6.3]



Inside rectangle measures 8 × 6

Pebble path (1 m wide from deck) measures 10 × 8

Garden bed (2 m wide from path) measures 14 × 12

A = l × w

= 14 × 12

= 168 m2

Question 17 4 marks [6.3]

|  |  |
| --- | --- |
| (a) A = l2  = 2.82 = 7.84 cm2 | (b) A = lw = 4.4 × 8 = 35.2 cm2 |

Question 18 3 marks [6.3]

Width of the curtain = 0.9 × 3 = 2.7 m

Length of the curtain = 1.2 + 0.3 = 1.5 m

Area of material

= l × w

= 2.7 × 1.5

= 4.05 m2

Question 19 2 marks [6.4]

A = bh (use the perpendicular height)

= 9 × 3

= 27 cm2

Question 20 3 marks [6.4]

A = l × w

63 = 9 × w

w = 63 ÷ 9

w = 7 cm

Question 21 2 marks [6.5]

A = bh

=  × 90 × 40

= 45 × 40

= 1800 mm2

Question 22 3 marks [6.5]

Divide the composite shape into three separate shapes using vertical lines.

left rectangle area = 3 × 7 = 21 cm2

centre rectangle height = 7 – 5 = 2 cm

centre rectangle area = 3 × 2 = 6 cm2

triangle base = 10 – 3 – 3 = 4 cm

triangle area =  × 4 × 2 = 4 cm2

Total area = 21 + 6 + 4 = 31 cm2

Question 23 2 marks [6.5]

Area of large rectangle

= l × w

= 32 × 27

= 864 m2

Area of small rectangle

= l × w

= 18 × 17

= 306 m2

shaded area = area of large rectangle – area of small rectangle

= 864 – 306

= 558 m2

Question 24 2 marks [6.6]

V = l × w × h

= 3 × 3 × 3

= 27 cm3

Question 25 2 marks [6.6]

V = l × w × h

= 10 × 4 × 4

= 160 cm3

Question 26 3 marks [6.6]

V = l × w × h

240 = 8 × 6 × h

240 = 48 × h

h = 240 ÷ 48

= 5 cm

Question 27 3 marks [6.5]

Area of tray = l × w

= 480 × 320

= 153 600 mm2 or 1536 cm2

Area of tile = l × w

= 2 × 2

= 4 cm2

Number of tiles required = area of tray (cm2) ÷ area of tile (cm2)

= 1536 ÷ 4

= 384

384 tiles are required to cover the tray.

Short answer total: 49

Extended answer section

Question 28 5 marks [6.6]

(a) Volume of one cereal box = l × w × h  
= 40 × 280 × 185  
= 2 072 000 mm3  
Volume of large carton = number of cereal boxes × volume of one cereal box  
= 24 × 2 072 000  
= 49 728 000 mm3

(b) The height of one cereal box is 185 mm, if the cereal boxes are stacked 2 high, then the height of the carton is 185 × 2 = 370 mm  
There are 12 boxes in each layer.  
If the boxes are to be packed in two layers with 12 boxes in each layer and only one box wide, the width of the carton is 40 × 12 = 480 mm  
V = l × w × h  
49 728 000 = l × 480 × 370  
49 728 000 = l × 177 600  
l = 49 728 000 ÷ 177 600  
l = 280 mm  
Possible dimensions of the cartoon are 280 mm × 480 mm × 370 mm  
Other solutions are possible. The cereal boxes can be packed in two layers, with two rows of six boxes.

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

3 × 8 rectangle

P = 2l + 2w

= (2 × 3) + (2 × 8)

= 22 cm

A = l × w

= 3 × 8

= 24 cm2

Other solutions may be possible.

Question 30 4 marks [6.5]

(a) Canvas D is the best fit and covers most of the wall.  
Width of three canvases is 90 × 3 = 270 cm  
With 10 cm gap between the two canvases and the walls adds an extra 40 cm to the width:   
270 + 40 = 310 cm  
Canvas B and C are too big for the 3 m wall and Canvas A is too small.

(b) A = l × w  
(using width from part (a))  
A = 125 × 90 × 3  
A = 33 750 cm2

Extended answer total: 11

TOTAL test marks: 69