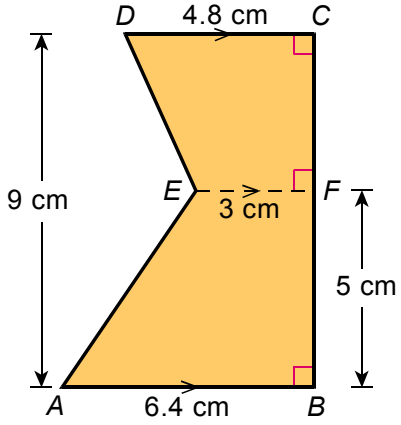
F.2 Mathematics
MC Exercise
2B10 Area and Volume

1. Find the area of the shaded region.



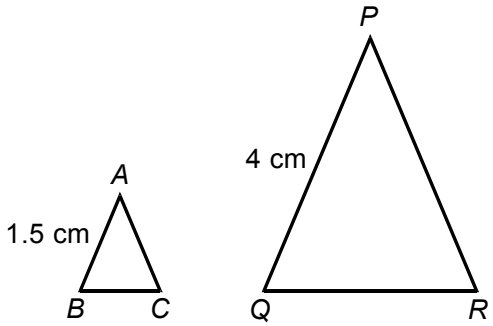
A. $23.5\ \text{cm}^2$

B. $24.5\ \text{cm}^2$

C. $38.1\ \text{cm}^2$

D. $39.1\ \text{cm}^2$

2. In the figure, $\Delta ABC \sim \Delta PQR$ and the area of ΔABC is $1.8\ \text{cm}^2$. Find the area of ΔPQR.



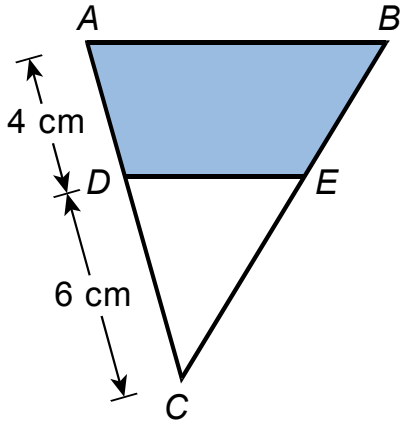
A. $4.8\ \text{cm}^2$

B. $5.4\ \text{cm}^2$

C. $12.8\ \text{cm}^2$

D. $16.2\ \text{cm}^2$

3. In the figure, $\Delta CAB \sim \Delta CDE$ and the area of ΔCDE is $27\ \text{cm}^2$. Find the area of the shaded region.



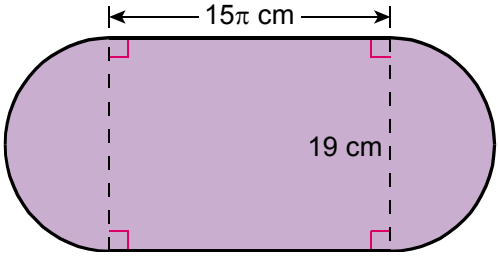
A. $36.72\ \text{cm}^2$

B. $48\ \text{cm}^2$

C. $63.72\ \text{cm}^2$

D. $75\ \text{cm}^2$

4. The following figure is formed by a rectangle and two semi-circles, find its perimeter.

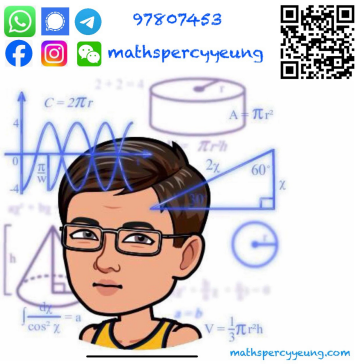


A. 34π cm

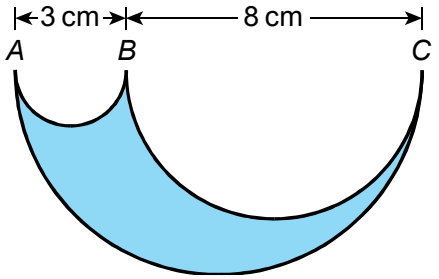
B. 49π cm

C. 53π cm

D. 68π cm



5. The following figure is formed by semi-circles, find its perimeter.



A. 5.5π cm

B. 11π cm

C. 22π cm

D. 44π cm

6. The distance travelled by a coin in 25 revolutions is 150 cm. Find the radius of the coin. (Give your answer correct to 1 decimal place.)

A. 1.0 cm

B. 1.9 cm

C. 9.4 cm

D. 18.8 cm

7. Given that the diameter of a circle is 3.4 cm, find the area of the circle.

A. 1.7π cm^2

B. 2.89π cm^2

C. 3.4π cm^2

D. 11.56π cm^2

8. The length of the second-hand of a clock is 7 cm. Find the area covered by the second-hand in 30 seconds.

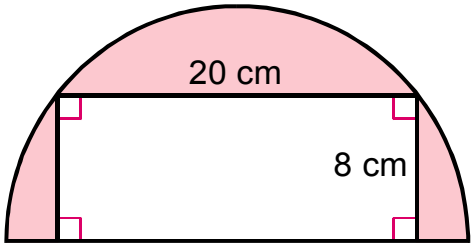
A. 6.125π cm^2

B. 12.25π cm^2

C. 24.5π cm^2

D. 49π cm^2

9. The following figure is formed by a semi-circle and a rectangle, find the area of the shaded region.



A. $(82\pi - 160)$ cm^2

B. $(164\pi - 160)$ cm^2

C. 164π cm^2

D. Cannot be found

10. A, B and C are three circles of different sizes. It is given that the radius of circle A is 16 cm and the diameter of circle B is 24 cm. If the sum of the areas of circle A and circle B is equal to the area of circle C, find the radius of circle C.

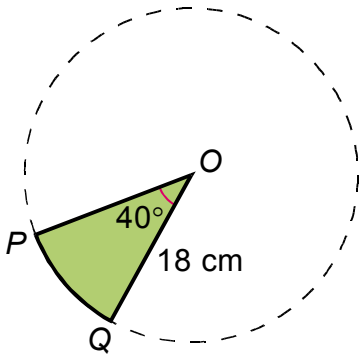
A. 20 cm

B. 28 cm

C. 32 cm

D. 40 cm

11. Find the length of $\overset{\frown}{PQ}$ in the figure.



A. 4π cm

B. 36π cm

C. 162π cm

D. 324π cm

12. The arc length of a circle is $\frac{4}{9}$ of its circumference. Find the angle at the centre subtended by the arc.

A. 80°

B. 100°

C. 160°

D. 240°

13. The length of the hour-hand of a clock is 18 cm. Find the distance travelled by its tip in 1 hour.

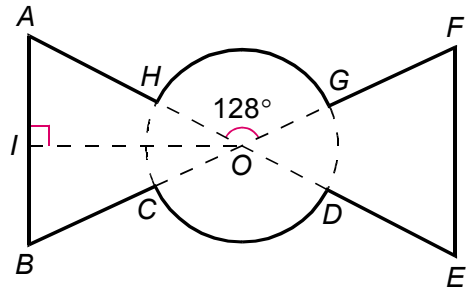
A. 1.5π cm

B. 3π cm

C. 27π cm

D. 36π cm

14. The following figure is formed by a circle and two triangles. *AHODE* and *BCOGH* are straight lines. Given that $AB = 37$ cm, $IO = 38$ cm, $OH = 20$ cm and $\angle HOG = 128°$, find the area of the figure. (Give your answer correct to 1 decimal place.)



A. 1 149.8 cm^2

B. 1 596.6 cm^2

C. 2 299.6 cm^2

D. 2 662.6 cm^2

15. The dimensions of the base of a rectangular tank are $25\text{ m} \times 4\text{ m}$. If there is 1 000 m^3 of water in the tank, find the depth of water.

A. 1 m

B. 10 m

C. 100 m

D. 1 000 m

16. 252 cm^3 of the water is poured into a cubic container and the water level rises by 7 cm, find the length of the side of the base of the container.

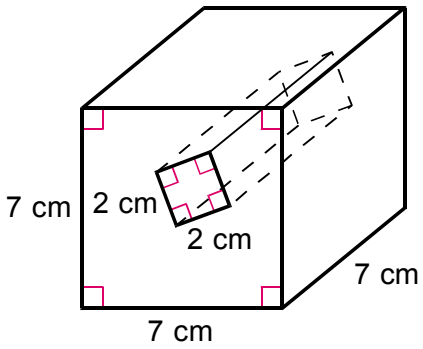
A. 6 cm

B. 8 cm

C. 9 cm

D. 12 cm

17. Find the volume of the prism in the figure.



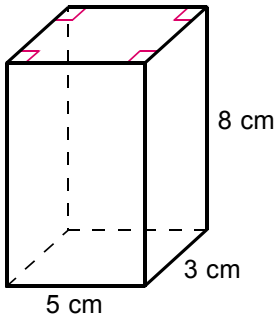
A. 245 cm^3

B. 315 cm^3

C. 335 cm^3

D. 343 cm^3

18. In the figure, find the total surface area of the prism.



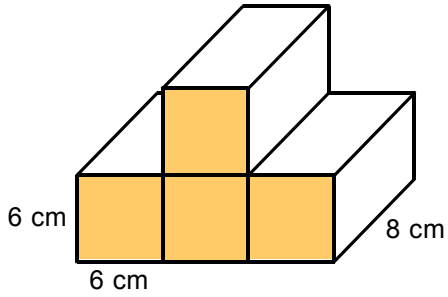
A. 79 cm^2

B. 105 cm^2

C. 120 cm^2

D. 158 cm^2

19. The following solid is formed by 4 identical square prisms, find its total surface area.



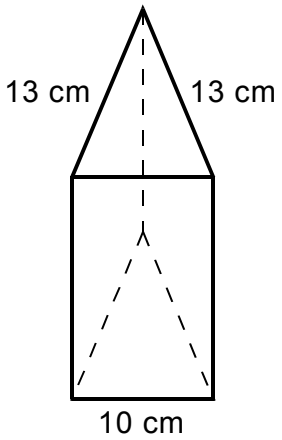
A. 624 cm^2

B. 768 cm^2

C. 912 cm^2

D. 1 152 cm^2

20. The figure shows a triangular prismatic gift. If a piece of wrapped paper of 840 cm^2 is just fit to wrap the gift, find the height of the gift.



A. 18 cm

B. 20 cm

C. 21 cm

D. 21.7 cm

21. By measurement, the base and height of a rectangle are 5.0 cm and 8.0 cm respectively, correct to 2 significant figures. Find the difference between the upper limit and lower limit of the area of the rectangle.

A. 1 cm^2

B. 1.3 cm^2

C. 2.6 cm^2

D. 0.005 cm^2

22. The base radius and height of a circular roll of candies are 2.1 cm and 24.5 cm respectively, correct to the nearest 0.1 cm. Find the possible range of the volume of the roll of candies.

A. $97.6\pi\ cm^3 \leq$ Volume of the roll of candies $< 119.064\pi\ cm^3$

B. $100.245\pi\ cm^3 \leq$ Volume of the roll of candies $< 105.565\pi\ cm^3$

C. $102.751\ 125\pi\ cm^3 \leq$ Volume of the roll of candies $< 113.482\ 375\pi\ cm^3$

D. $103.171\ 375\pi\ cm^3 \leq$ Volume of the roll of candies $< 116.020\ 125\pi\ cm^3$