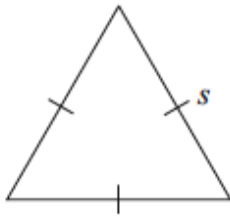
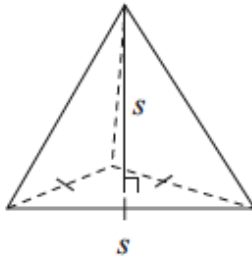


- 1 Which of the following has a volume that can be represented by s^3 ?

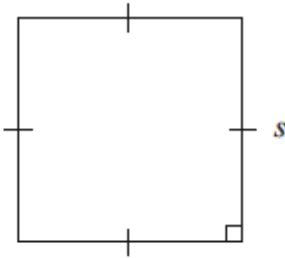
a



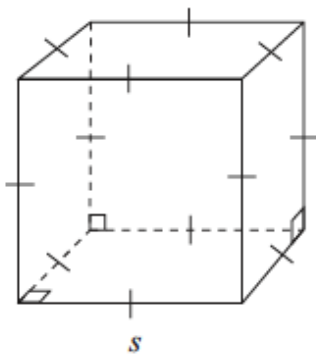
b



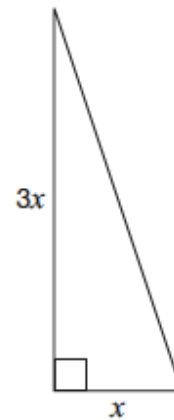
c



d



2. Luke designs a garden in the shape of a right triangle as shown below.



The total area of the garden is 96 m^2 .

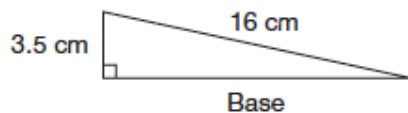
Hint:

$$A = \frac{1}{2}bh$$

Which is closest to the value of x in the diagram?

- a 6 m
- b 8 m
- c 32 m
- d 64 m

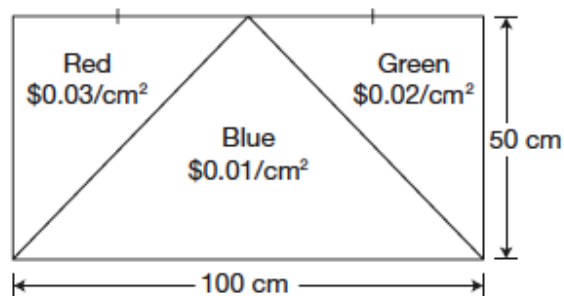
3. Consider the following triangle.



Which expression can be used in the process of determining the length of the base?

- a $16^2 - 3.5^2$
 - b $16^2 + 3.5^2$
 - c $\sqrt{16 + 3.5}$
 - d $\sqrt{16 - 3.5}$
5. Pablo is designing a rectangular flag that consists of three coloured triangles.

The picture below shows the colours of the triangles and the cost of each colour of material.



What is the total cost of the material?

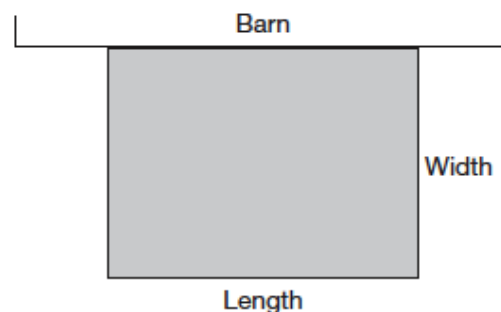
- a \$75.00
- b \$87.50
- c \$150.00
- d \$175.00

4. A cylinder has a volume of $400\pi \text{ cm}^3$ and a diameter of 20 cm.

Which of the following is closest to the height of the cylinder?

- a 1 cm
- b 4 cm
- c 20 cm
- d 40 cm

6. Tom uses fencing to create a rectangular horse enclosure. He uses the side of a barn as one of the sides of the enclosure.

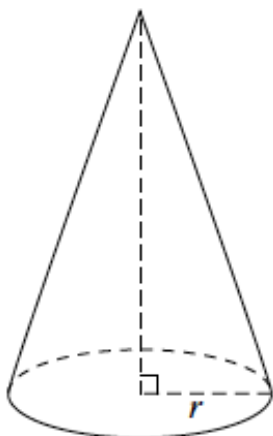


Tom has 48 metres of fencing to use for the three sides of the rectangular enclosure.

Which set of dimensions will use the entire 48 m of fencing?

- a width is 8 m, length is 6 m
- b width is 12 m, length is 12 m
- c width is 24 m, length is 12 m
- d width is 12 m, length is 24 m

7. The cone shown below is 20 cm high and has a total volume of 1000 cm^3 .



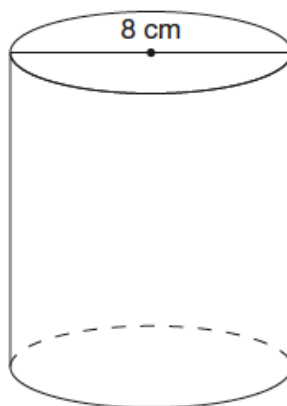
Which of the following is closest to the length of the radius, r ?

- a 6.9 cm
 - b 6.2 cm
 - c 4.0 cm
 - d 2.3 cm
9. Ella wants a rectangle with
- a perimeter of 100 cm and
 - the largest possible area.

What are the dimensions of the rectangle that satisfies her conditions?

- a $10 \text{ cm} \times 10 \text{ cm}$
- b $20 \text{ cm} \times 30 \text{ cm}$
- c $25 \text{ cm} \times 25 \text{ cm}$
- d $40 \text{ cm} \times 60 \text{ cm}$

8. The cylinder below has a volume of 150 cm^3 .



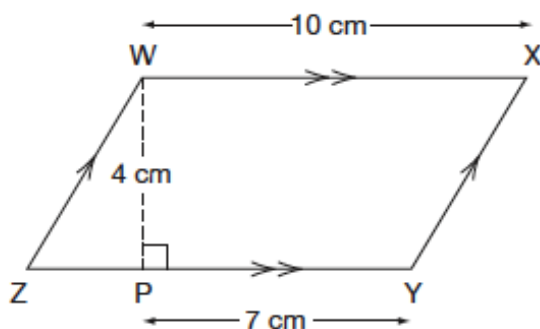
Which of the following is closest to the area of the lateral surface of the cylinder?

Hint:

$$V_{\text{cylinder}} = \pi r^2 h$$

$$A_{\text{lateral surface}} = 2\pi r h$$

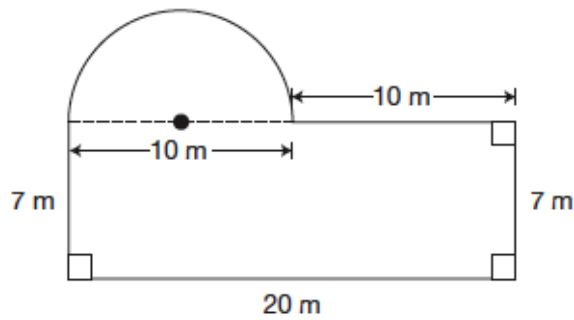
- a 38 cm^2
 - b 75 cm^2
 - c 150 cm^2
 - d 300 cm^2
10. Consider the parallelogram shown below.



What is the perimeter of WXYZ?

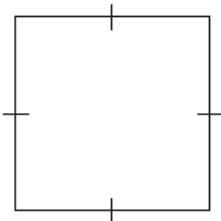
- a 28 cm
- b 30 cm
- c 31 cm
- d 34 cm

11. A garden is in the shape of a rectangle and a semicircle as shown below.



Which of the following is closest to the amount of fencing needed to enclose the garden?

- a 60 m
 - b 70 m
 - c 75 m
 - d 85 m
13. Chris has a square garden with an area of 38.4 m^2 , as shown in the diagram.



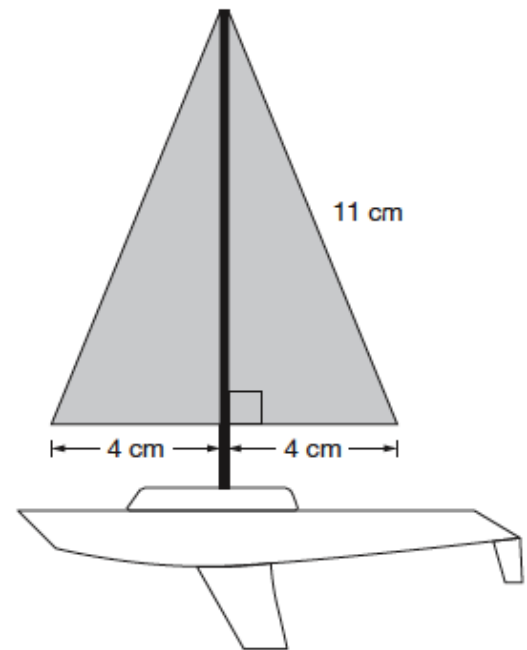
He decreases the length of each side by 1.7 m to make a smaller garden.

Which is closest to the perimeter of the smaller garden?

- a 37 m
- b 32 m
- c 25 m
- d 18 m

12. **Toy Sailboats**

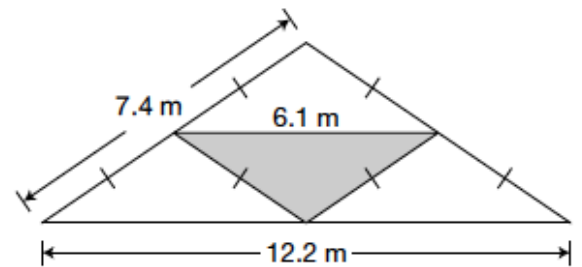
Emelina makes toy sailboats as shown below.



Determine the total area of the shaded sails.

Show your work.

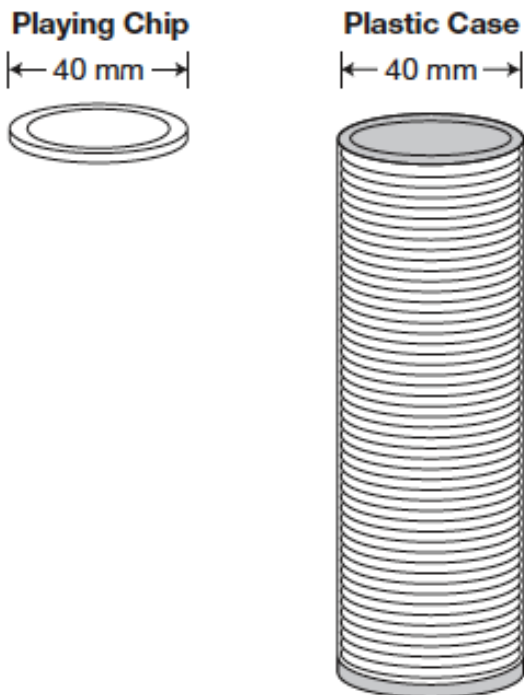
14. The frame of the roof of a small house is being constructed. A portion of the frame consists of four isosceles triangles as shown below.



What is the total length of the three sides that form the shaded interior triangle?

- a 3.7 m
- b 6.1 m
- c 13.5 m
- d 18.3 m

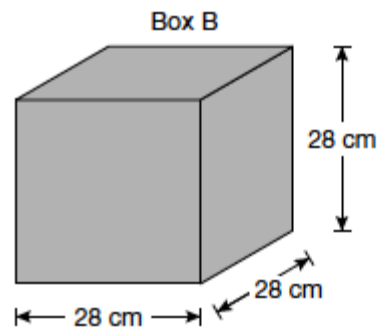
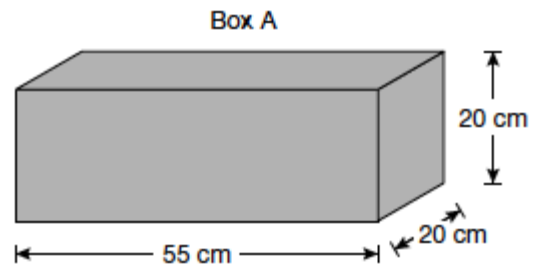
15. The playing chips of a board game are stored in cylindrical plastic cases. The plastic cases have a volume of $25\,120\text{ mm}^3$ and a diameter of 40 mm .



Which of the following is closest to the height of one playing chip if 50 playing chips can fit tightly into the plastic case as shown above?

- a 0.1 mm
- b 0.4 mm
- c 1.3 mm
- d 2.5 mm

16. Box A and Box B have about the same volume. The cost to make a box depends on the amount of cardboard used.



Which of the following statements is correct?

- F Box B costs less; it uses 48 cm^3 less cardboard to make.
- G Box A costs less; it uses 290 cm^3 less cardboard to make.
- H Box B costs less; it uses 496 cm^2 less cardboard to make.
- J Box A costs less; it uses 496 cm^2 less cardboard to make.

17. Maria grows several varieties of plants in a rectangular-shaped garden. She uses fencing to divide the garden into 16 squares that are each 1 m by 1 m. She also puts fencing around the perimeter of the garden.

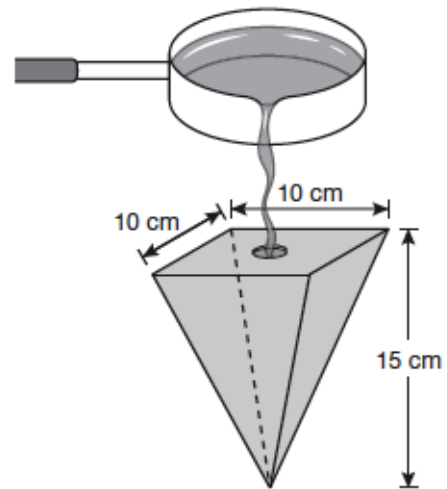
Which of the following represents the smallest amount of fencing that Maria needs?

- a 24 m
- b 40 m
- c 42 m
- d 49 m

19. If the radius of a sphere is tripled, the surface area of the sphere will increase

- a by a factor of 3.
- b by a factor of 4.
- c by a factor of 6.
- d by a factor of 9.

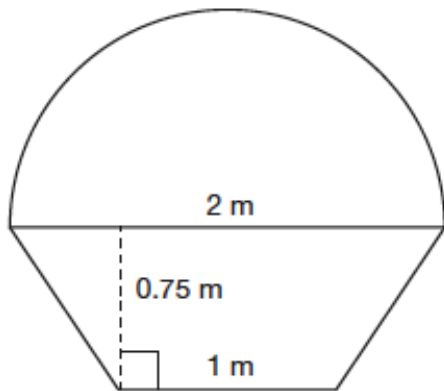
18. The mould shown below is used to make a candle in the shape of a square-based pyramid.



What is the volume of the mould?

- a 1500 cm^3
- b 500 cm^3
- c 400 cm^3
- d 35 cm^3

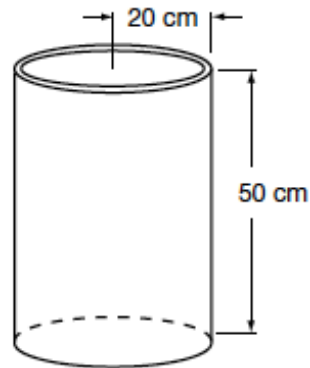
20. The Cutie Cupcake Company is having a sign made. The sign will be a semicircle on top of a trapezoid.



Which of the following is closest to the total area of the sign?

- a 4.27 m^2
- b 2.70 m^2
- c 1.57 m^2
- d 1.13 m^2

21. Brad has a cylindrical metal container that is open at the top. He wants to paint the outer surfaces of the container, including the bottom.

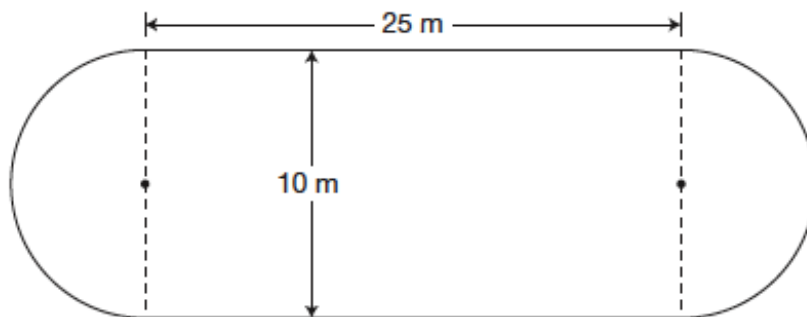


Which expression should he use to calculate the area to be painted?

- A $\pi(20)(50) \text{ cm}^2$
- B $2\pi(20)(50) \text{ cm}^2$
- C $2(\pi(20)^2 + \pi(20)(50)) \text{ cm}^2$
- D $(\pi(20)^2 + 2\pi(20)(50)) \text{ cm}^2$

22. **Building an Ice Rink**

Jake builds an ice rink as shown below.

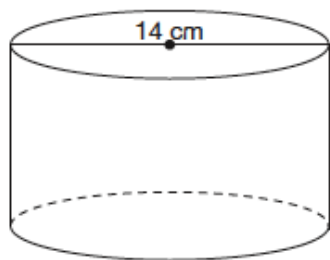


Determine the perimeter of the rink.

Show your work.

23. **How High Is It?**

The cylinder pictured below has a surface area of 660 cm^2 .



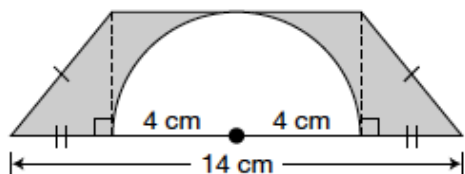
Use the following formula to determine the height of the cylinder:

$$\text{Surface area} = 2\pi r^2 + 2\pi rh$$

Show your work.

24. **Something's Missing**

The semicircle in the diagram below has a radius of 4 cm.

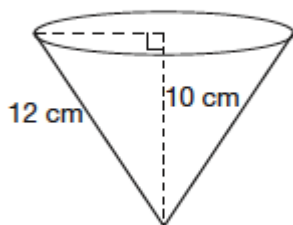


What is the area of the shaded region?

Show your work.

25. **Cone Zone**

Zach measures the slant height of a cone-shaped cup and finds that it is 12 cm. The height is 10 cm.



Determine the volume of water in the cup if Zach fills it to the top.

Show your work.