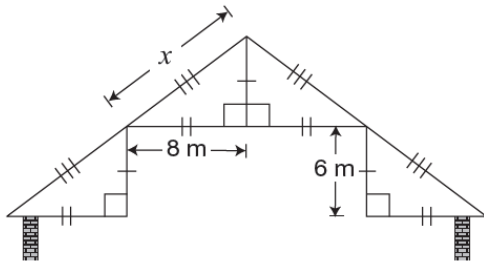


Review and EQAO Practice for Chapter 8 – Perimeter and Area

2018

- 2 A roof can be modelled by four congruent triangles, as pictured.

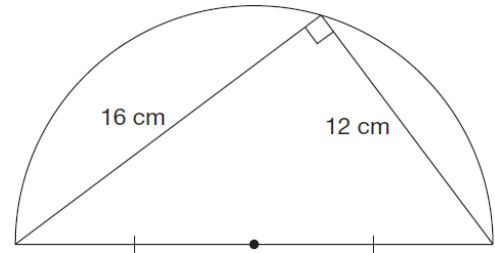


The length of x , in metres, can be determined using the formula $x^2 = 8^2 + 6^2$.

Which is closest to the total length of **both** sides of the roof, $4x$?

- a 56 m
- b 40 m**
- c 21 m
- d 15 m

- 20 A semicircle with a right triangle in it is shown.



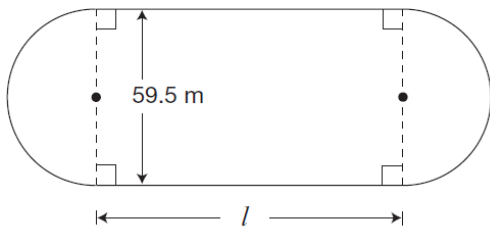
What is the radius of the semicircle?

Hint:

Use the Pythagorean theorem.

- a 28 cm
- b 20 cm
- c 14 cm
- d 10 cm**

- 21 A diagram of a track with a perimeter of 475 m is shown below.

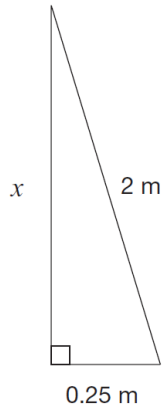


Which of the following is closest to the length of a side of the rectangular part of the track, l ?

- a 51 m
- b 144 m**
- c 288 m
- d 356 m

2017

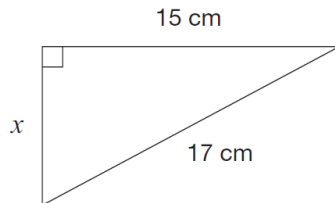
- 20 Which equation correctly uses the Pythagorean theorem to determine the value of x in the diagram?



- a $x = \sqrt{2 + 0.25}$
- b $x = \sqrt{2 - 0.25}$
- c $x = \sqrt{2^2 + 0.25^2}$
- d** $x = \sqrt{2^2 - 0.25^2}$

2015

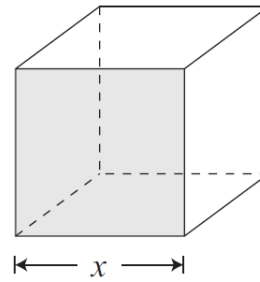
- 28 According to the Pythagorean theorem, what is the length of the third side of the triangle, x ?



- a 2 cm
- b 4 cm
- c 6 cm
- d** 8 cm

2016

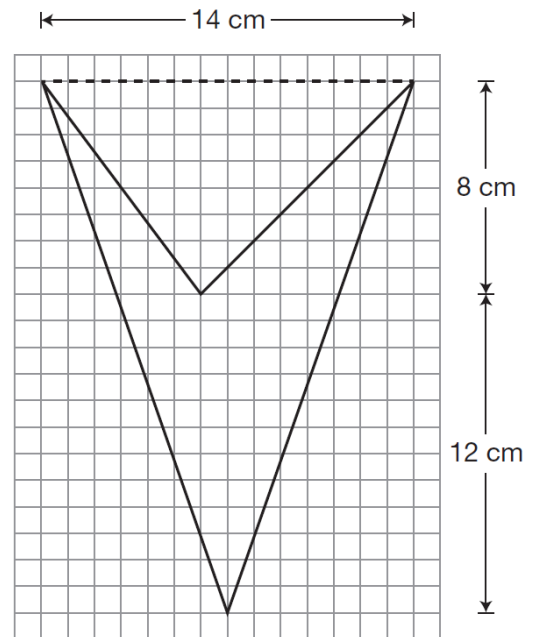
- 2 A cube with a given side length is pictured below.



Which algebraic expression represents the area of **one face** of the cube?

- a $2x$
- b $4x$
- c** x^2
- d x^3

- 19 What is the area of the shape represented below?



- a 28 cm^2
- b 56 cm^2
- c** 84 cm^2
- d 168 cm^2

2014

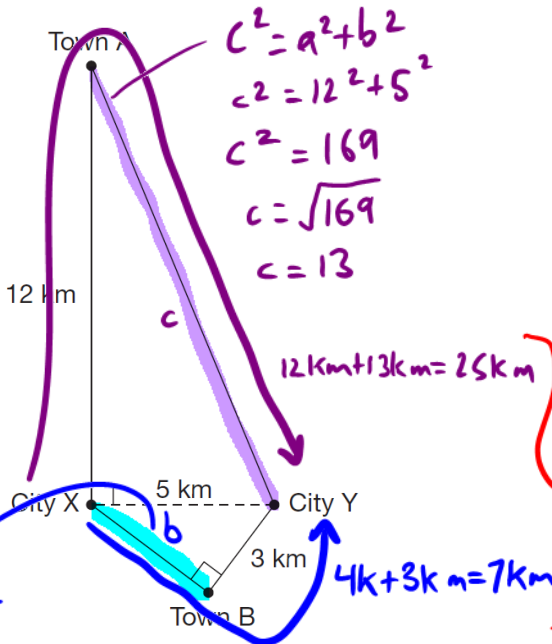
- 1 The following is the formula for the area of a circle:

$$A = \pi r^2$$

If the radius of a circle is 1.25 cm, which of the following is closest to its area?

- a 15.4 cm²
- b 7.9 cm²
- c 4.9 cm²**
- d 3.9 cm²

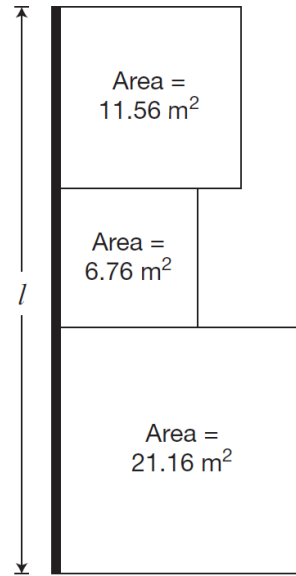
- 25 The 5 km of highway between City X and City Y is closed. There are two possible detour routes: one through Town A and one through Town B, as shown in the diagram below.



How much shorter is the detour through Town B than the detour through Town A?

- a 7 km
- b 9 km
- c 16 km
- d 18 km**

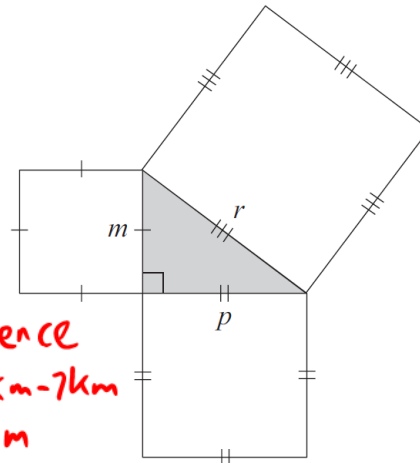
- 4 Marc has a garden that is made up of three square sections. He builds a fence on one side of the garden as shown below.



Which of the following is closest to the length of the fence, l ?

- a 19.7 m
- b 10.6 m**
- c 9.9 m
- d 6.3 m

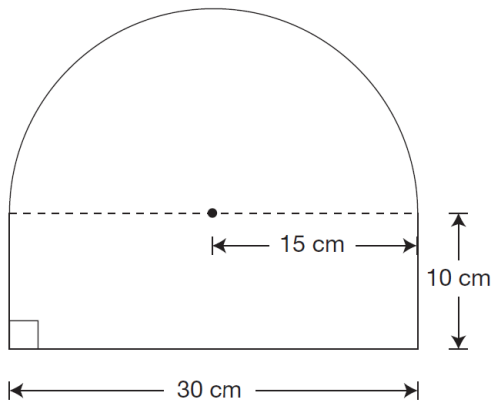
- 24 The diagram below is made of a right triangle and three squares.



Which of the following is represented by this diagram?

- a** $p^2 = r^2 - m^2$
- b $p^2 = m^2 - r^2$
- c $r^2 = p^2 - m^2$
- d $r^2 = m^2 - p^2$

- 26 The sign below is made up of a rectangle and a semicircle.

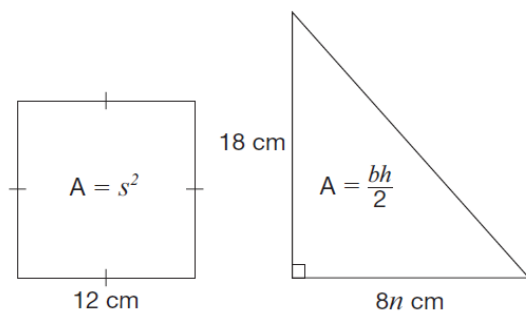


Which of the following is closest to the area of the sign?

- a 347 cm²
- b 653 cm²**
- c 1007 cm²
- d 1410 cm²

2013

- 5 The square and the triangle below have the same area.



What is the value of n ?

- a 1
- b 2**
- c 8
- d 16

$$A_{\text{circle}} = \pi r^2$$

$$= \pi (15)^2$$

$$= 706.85 \text{ cm}^2$$

$$A_{\text{semi-circle}} = A_{\text{circle}} \div 2$$

$$= 706.85 \div 2$$

$$= 353.42 \text{ cm}^2$$

$$A_{\text{rectangle}} = l \times w$$

$$= 30 \times 10$$

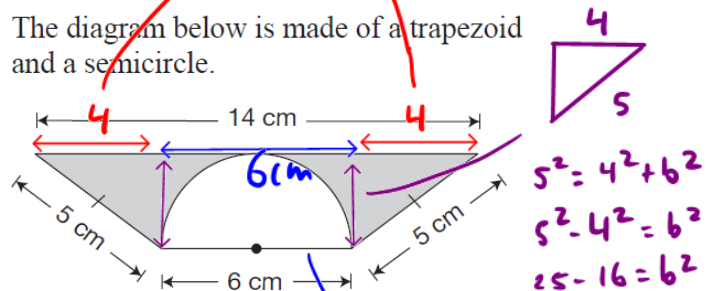
$$= 300 \text{ cm}^2$$

$$A_{\text{total}} = A_{\text{rectangle}} + A_{\text{semicircle}}$$

$$= 300 + 353.42$$

$$= 653.42 \text{ cm}^2$$

- 26 The diagram below is made of a trapezoid and a semicircle.



Which is closest to the area of the shaded part of the diagram?

- a 2 cm²
- b 16 cm²**
- c 21 cm²
- d 36 cm²

$$A_{\text{trapezoid}} = \frac{(a+b)h}{2}$$

$$= \frac{(6+14) \times 6}{2}$$

$$= 30 \text{ cm}^2$$

$$A_{\text{semicircle}} = \pi r^2$$

$$= \pi (3)^2$$

$$= 28.27 \text{ cm}^2$$

$$\div 2$$

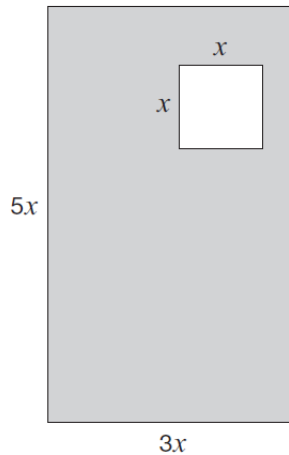
$$A = 14.13 \text{ cm}^2$$

$$A_{\text{shaded region}} = 30 - 14.13$$

$$= 15.87 \text{ cm}^2$$

8 Square Removed

This rectangle has a square removed. There are algebraic expressions for the sides, in centimetres.



The area of the rectangle without the square is 126 cm^2 .

Determine the side length of the square, x , in centimetres.

Show your work.

$$\rightarrow A = A_{\text{big rectangle}} - A_{\text{square}}$$

$$126 = (5x)(3x) - (x)(x)$$

$$126 = 15x^2 - x^2$$

$$126 = 14x^2$$

$$\frac{126}{14} = \frac{14x^2}{14}$$

$$9 = x^2$$

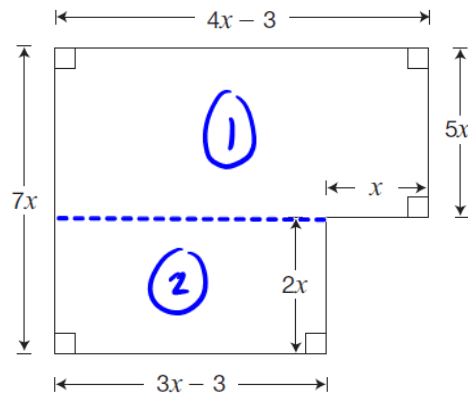
$$\sqrt{9} = x$$

$$3 = x$$

The side length of the square, x , is 3 cm.

9 Floored Areas

The diagram of the floor shown below has algebraic expressions for the lengths of its sides, in metres.



Determine an unsimplified expression for the **total area** of the floor, A , in m^2 .

$$A = (4x-3)(5x) + (3x-3)(2x)$$

Simplify your expression fully. Show your work.

$$A = (4x-3)(5x) + (3x-3)(2x)$$

$$A = 20x^2 - 15x + 6x^2 - 6x$$

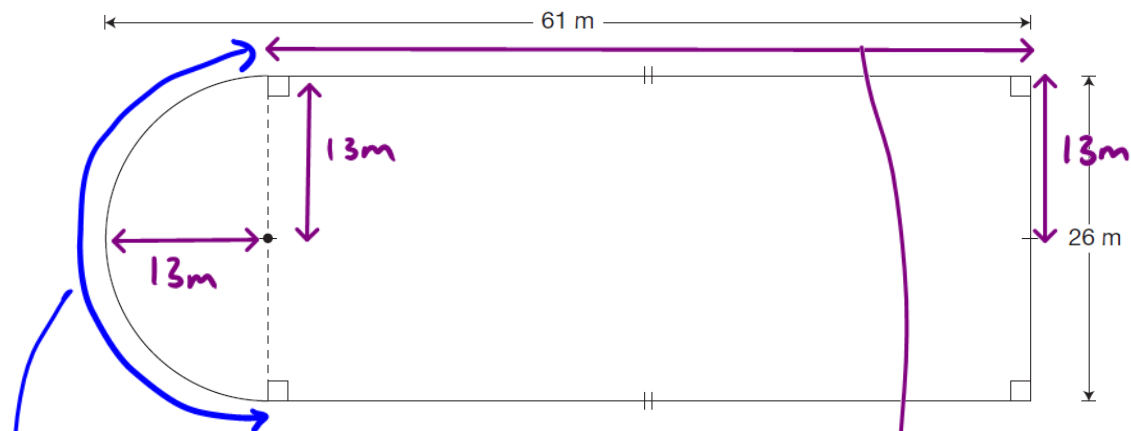
$$A = 20x^2 + 6x^2 - 15x - 6x$$

$$A = 26x^2 - 21x$$

2015

17 Skate On!

A diagram of a community ice rink is shown below.



The rink is being enclosed with fencing that costs \$6.20/m.

Determine the total cost of fencing for the rink.

Show your work.

Circumference $\frac{1}{2}$ circle:

$$\begin{aligned}
 &= \frac{\pi d}{2} \\
 &= \frac{\pi \times 26}{2} \\
 &= \frac{82}{2} \\
 &= 41\text{m}
 \end{aligned}$$

$$\begin{aligned}
 \text{length of rectangle} &= 61 - r \\
 &= 61 - 13 \\
 &= 48\text{m}
 \end{aligned}$$

$$P = 41 + 48 + 26 + 48$$

$$P = 163\text{m}$$

$$\begin{aligned}
 \text{Cost} &= P \times \$6.20/\text{m} \\
 &= 163\text{m} \times \$6.20
 \end{aligned}$$

$$\boxed{\text{Cost} = \$1010.60}$$