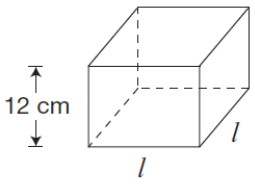
Review and EQAO Practice for Chapter 9 - Optimization

2018

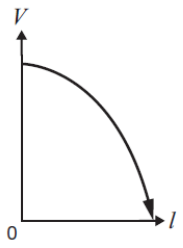
5 The side lengths, l, of this square-based prism can change. The height is 12 cm and **cannot** change.

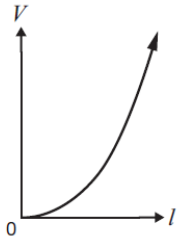


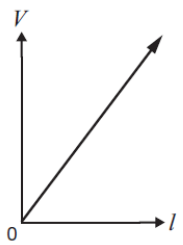
The volume of the prism for one possible side length is given in this chart.

l	V
1	12
2	
3	

Which graph could represent the relationship between the volume, V, in cm^3, of this square-based prism and the length of a side of its square base, l, in cm?

a


c


b


d


19 Which of the following dimensions produces a rectangle with the smallest perimeter?

a 10 m × 120 m

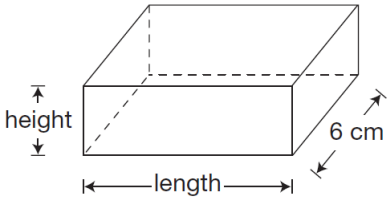
b 30 m × 40 m

c 50 m × 24 m

d 60 m × 20 m

2017

19 The rectangular prism pictured below has a volume of 216 cm^3.



Which of the following lengths produces the prism with the smallest height?

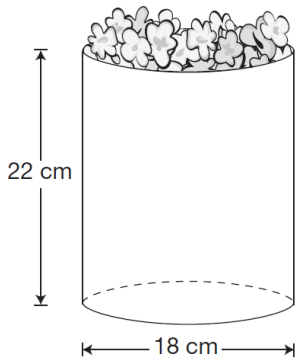
a 3 cm

b 6 cm

c 12 cm

d 18 cm

21 Paper is used to make a popcorn container in the shape of an open-topped cylinder, as pictured.



Which of the following calculations would correctly determine the least amount of paper required to make the container?

a $\pi(9)^2(22)$

b $\pi(18)^2(22)$

c $\pi(9)^2 + 2\pi(9)(22)$

d $\pi(18)^2 + 2\pi(18)(22)$

2015

26 The table below lists the widths of four rectangles, each with an area of 72 cm^2.

	Width (cm)
Rectangle 1	6
Rectangle 2	8
Rectangle 3	10
Rectangle 4	18

Which rectangle has the smallest perimeter?

a Rectangle 1
b Rectangle 2
c Rectangle 3
d Rectangle 4

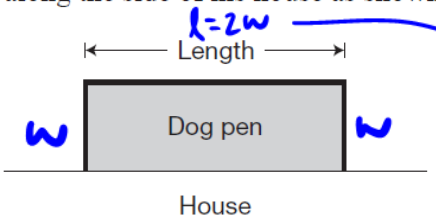
27 Salt is sold in packages in the shape of a rectangular-based prism that is not a cube. A new package in the shape of a cube is designed to contain the same volume.

Which of the following is true about the new package?

a It holds less salt.
b It holds more salt.
c It requires less material.
d It requires more material.

2013

24 Marcus is building a rectangular dog pen along the side of his house as shown below.



Marcus has 20 m of fencing for the 3 sides of the dog pen.

What is the length of the dog pen with the maximum area?

a 4 m
b 5 m
c 10 m
d 12 m

$l = 2w$

$P = w + l + w$

$20 = w + 2w + w$

$20 = 4w$

$\frac{20}{4} = \frac{4w}{4}$

$5 = w$

$l = 2w$

$l = 2(5)$

$l = 10\ m$