Released Assessment Questions, 2018

QUESTIONS

Grade 9 Assessment of Mathematics • Academic

Read the instructions below.

Along with this booklet, make sure you have the *Answer Booklet* and the Formula Sheet.

You may use any space in this book for rough work for multiple-choice questions only.

The diagrams in these booklets are **not** all drawn to scale.

ATTENTION:

Unlike in the actual assessment booklet, the questions in this booklet are sorted by strand.

There are more multiple-choice questions in this booklet than in a regular booklet.

Continue to read the directions on the cover of the *Answer Booklet.*

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Remember to write your answers in your *Answer Booklet*.

1 A ball is dropped from a cliff that is 135 m high. The relationship between the height of the ball, h, in metres, and time, t, in seconds, can be represented by the equation $h = -4.9t^2 + 135$.

Which is closest to the height of the ball after 2.1 seconds?

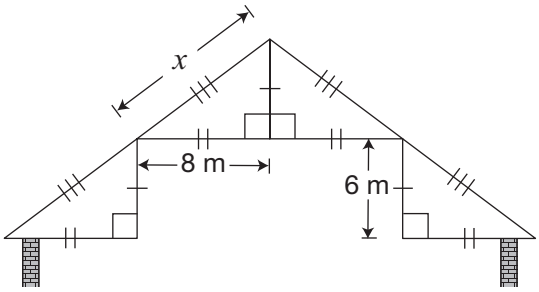
a 22 m

b 29 m

c 113 m

d 125 m

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

3 Which is a simplified form of $3x(7x - 2)$?

a $21x^2 - 2x$

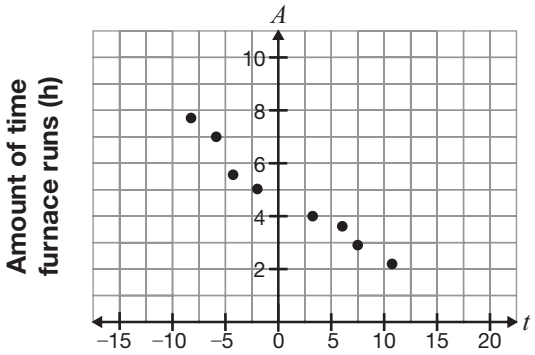
b $21x^2 - 2$

c $21x^2 - 6$

d $21x^2 - 6x$

4 One winter, Cassy records the total amount of time, A, in hours, that her furnace runs in a day versus the outdoor temperature, t, in degrees Celsius. She produces this scatter plot.

Amount of Time Furnace Runs vs. Outdoor Temperature



Outdoor temperature (°C)

Cassy then decides to improve the insulation in her home, which will save energy and reduce the amount of time her furnace runs.

Which point could Cassy expect to record **after** improving the insulation in her home?

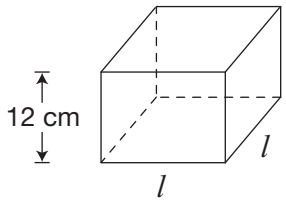
a $(-5, 10)$

b $(0, 5)$

c $(5, 2)$

d $(10, 5)$

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

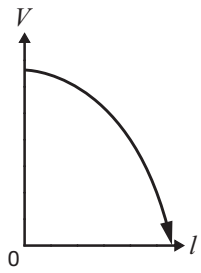


The volume of the prism for one possible side length is given in this chart.

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



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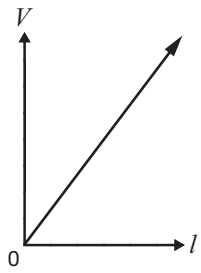

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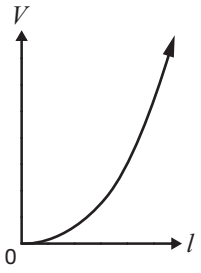

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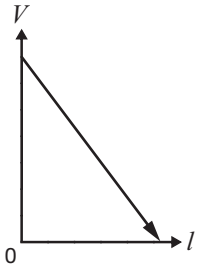


6 An amusement park charges an entrance fee and a cost per ride as shown in the table.

Number of rides	Total cost ($)
3	15
9	27

The park decides to reduce its entrance fee by $5.

What type of variation is this **new** relationship, and what is its initial value?

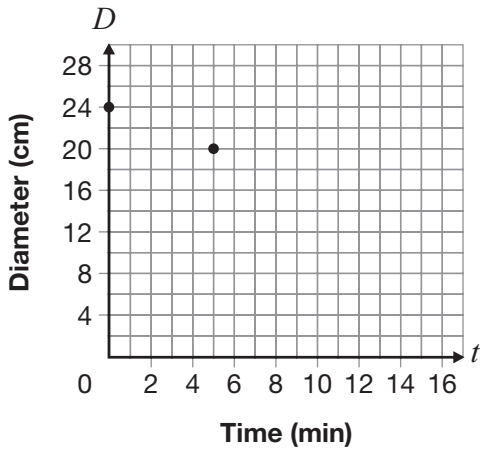
a a partial variation with an initial value of $4

b a direct variation with an initial value of $2

c a partial variation with an initial value of $9

d a direct variation with an initial value of $0

7 A class measures the diameter of a snowball as it melts. Information about the diameter at two different times is shown on the grid below.



If this situation is modelled as a linear relationship using the two points, what is the **total time** it will take the snowball to melt completely?

a 30 minutes

b 24 minutes

c 20 minutes

d 16 minutes

Go to the *Answer Booklet* and complete the six open-response questions before continuing with question 14.

8 Open-Response

9 Open-Response

10 Open-Response

11 Open-Response

12 Open-Response

13 Open-Response

14 Which of the following does **not** represent a straight line?

a $y = 2$

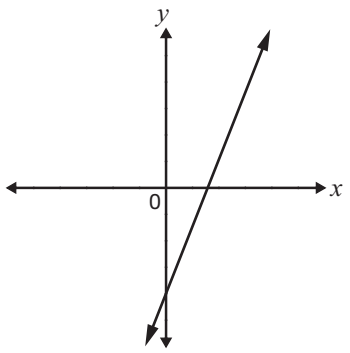
b $x = 2$

c $x = 2y$

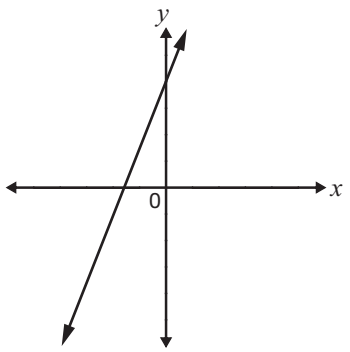
d $y = x^2$

15 Which of these graphs could represent $y = 5 - 2x$?

a



b



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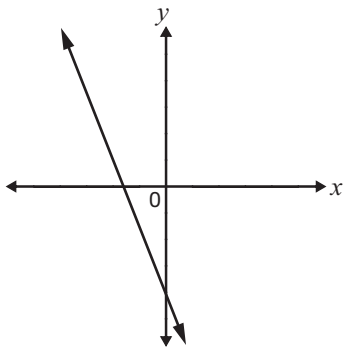

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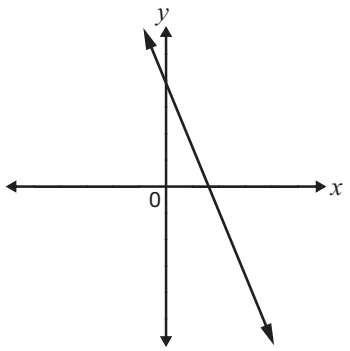
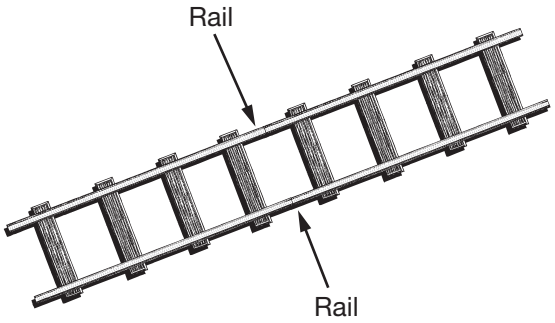


16 The path of one of the rails of a train track can be represented by the equation $y = \frac{2}{3}x + 1$.



Which equation could represent the path of the second rail?

a $y = -\frac{3}{2}x + 3$

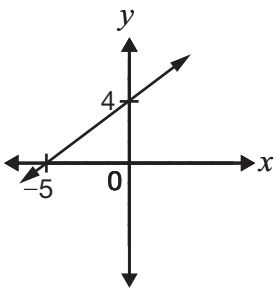
b $y = -\frac{2}{3}x + 3$

c $y = \frac{2}{3}x + 3$

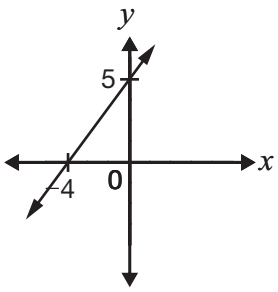
d $y = \frac{3}{2}x + 3$

17 Using the x- and y-intercepts, select the graph that represents $4x - 5y = -20$.

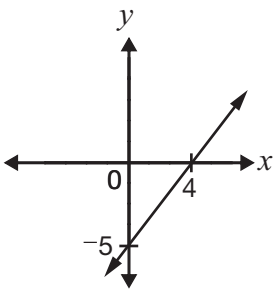
a



b



c



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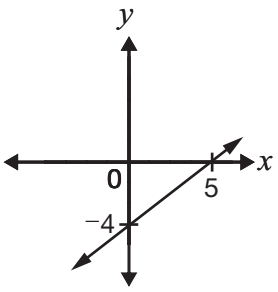


18 Fresh Springs Water Company delivers bottled water.

The total cost of the water, C, in dollars, is represented by $C = 8 + 1.5n$, where n is the number of litres.

Which of the following statements could be true?

Customers who order more than 1 L of water will pay

a $1 for every 9.5 L of water.

b $9.50 for each litre of water.

c an $8 delivery charge and $1.50 per litre of water.

d a $1.50 delivery charge and $8.00 per litre of water.

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

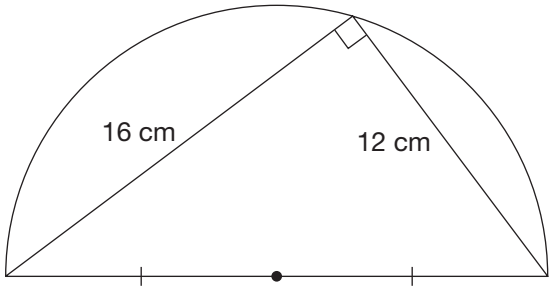
a 10 m × 120 m

b 30 m × 40 m

c 50 m × 24 m

d 60 m × 20 m

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



What is the radius of the semicircle?

Hint:
Use the Pythagorean theorem.

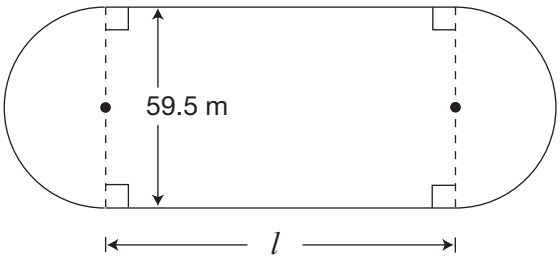
a 28 cm

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?

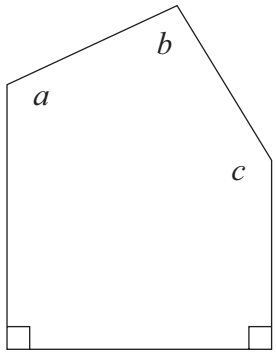
a 51 m

b 144 m

c 288 m

d 356 m

22 Which of the following is true for this diagram?



a $a + b + c + 90° + 90° = 180°$

b $a + b + c + 90° + 90° = 360°$

c $a + b + c + 90° + 90° = 540°$

d $a + b + c + 90° + 90° = 720°$