

# Released Assessment Questions, 2017

# QUESTIONS

Grade 9 Assessment of Mathematics • Academic

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**Read the instructions below.**

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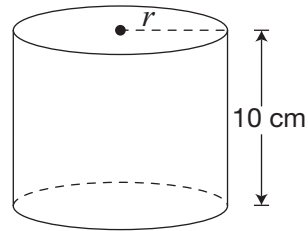
Remember to write your answers in your *Answer Booklet*.

- 1** Which is a simplified form of this expression?

$$\frac{x^8(x^6)}{x^4}$$

- a  $x^8$
- b  $x^{10}$
- c  $x^{12}$
- d  $x^{18}$

- 2** The cylinder pictured below has a volume of  $500 \text{ cm}^3$  and a height of 10 cm.



Which of the following represents the radius of the cylinder,  $r$ , in centimetres?

**Hint:**

$$V = \pi r^2 h$$

- a  $\sqrt{\frac{50}{\pi}}$
- b  $\frac{\sqrt{50}}{\pi}$
- c  $\frac{50}{\pi}$
- d  $\frac{50}{2\pi}$

- 3** Which of the following is a simplified form of

$$(-2m + 3) - (5m - 6)?$$

- a  $3m - 3$
- b  $3m + 9$
- c  $-7m - 3$
- d  $-7m + 9$

- 4** The equation below can be used to convert between temperatures in degrees Celsius,  $C$ , and temperatures in degrees Fahrenheit,  $F$ .

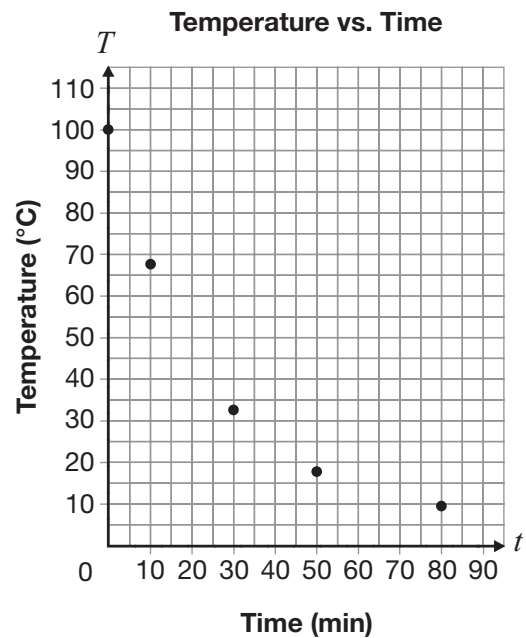
$$\frac{C}{5} = \frac{F - 32}{9}$$

Which correctly completes the statement?

If the temperature in degrees Celsius is 15, the temperature in degrees Fahrenheit is

- a less than 0.
- b greater than 60.
- c between 20 and 40.
- d between 40 and 60.

- 5** A pot of hot soup is placed in a refrigerator to cool. Information about the temperature of the soup at five different times is shown.



Which statement below is true based on the overall trend in the data?

- a At 90 minutes, the temperature of the soup will be  $0^{\circ}\text{C}$ .
- b The temperature of the soup decreases at a constant rate.
- c It takes approximately 18 minutes for the soup to cool to half its original temperature.
- d There is a greater decrease in temperature between 50 and 80 minutes than between 10 and 30 minutes.

- 6** The total cost for an extra large pizza at a restaurant is \$14.50, plus \$1.25 for each topping.

Which of the following equations represents the relationship between the total cost,  $C$ , in dollars, and the number of toppings,  $n$ ?

- a  $C = 1.25n$
- b  $C = 15.75n$
- c  $C = 1.25n + 14.50$
- d  $C = 14.50n + 1.25$

- 7** One of the following tables shows information about a linear relationship.

Using first differences, select this table.

**a**

| $x$ | $y$ |
|-----|-----|
| -3  | 9   |
| -2  | 6   |
| -1  | 4   |
| 0   | 3   |

**b**

| $x$ | $y$ |
|-----|-----|
| 0   | -5  |
| 1   | -3  |
| 2   | 0   |
| 3   | 3   |

**c**

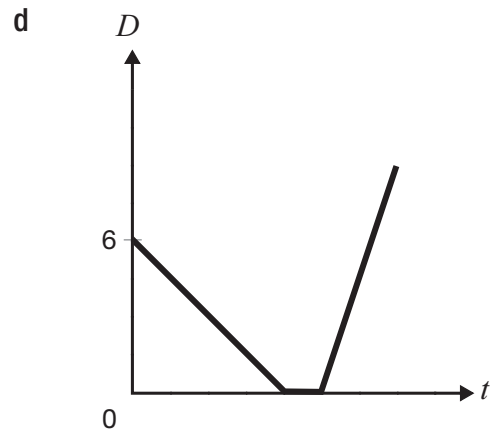
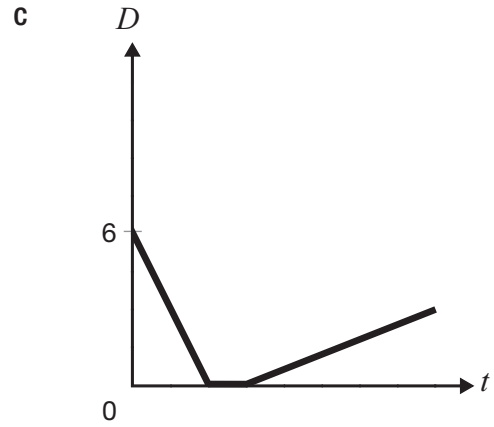
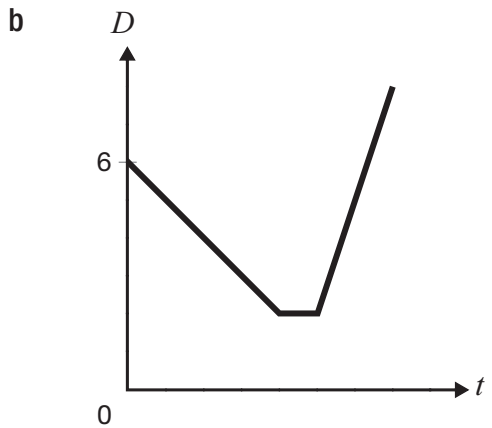
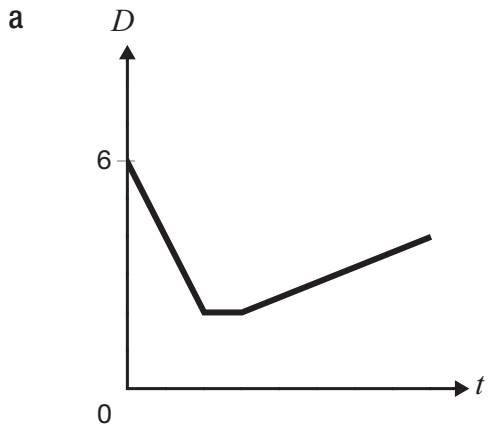
| $x$ | $y$ |
|-----|-----|
| 2   | 0   |
| 3   | -2  |
| 4   | -4  |
| 5   | -6  |

**d**

| $x$ | $y$ |
|-----|-----|
| -1  | 10  |
| 0   | 15  |
| 1   | 25  |
| 2   | 40  |

**8** Raven starts 6 m away from a motion detector. She walks quickly toward it, stops 2 m from the detector for a moment and then backs away from it slowly.

Which of the following graphs could represent the relationship between her distance from the detector,  $D$ , and time  $t$ , in seconds?





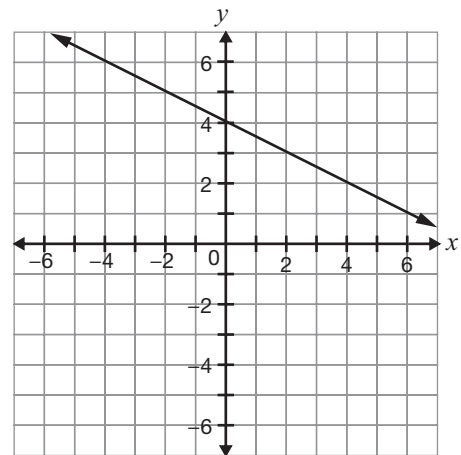
Go to the *Answer Booklet* and complete the six open-response questions before continuing with question 15.

- 9** Open-Response
- 10** Open-Response
- 11** Open-Response
- 12** Open-Response
- 13** Open-Response
- 14** Open-Response

**15** What are the slope and the  $y$ -intercept of the line represented by  $3x - 2y + 6 = 0$ ?

- a  $\frac{3}{2}, 3$
- b  $\frac{3}{2}, 6$
- c  $\frac{2}{3}, 2$
- d  $\frac{2}{3}, 3$

**16** A line is shown on the grid below.



Which of the following equations represents a line that is **perpendicular** to the line on the grid?

- a  $y = -2x - 4$
- b  $y = 2x + 4$
- c  $y = -\frac{1}{2}x - 4$
- d  $y = \frac{1}{2}x + 4$

- 17** The relationship between the total cost,  $C$ , of holding a dance and the number of guests,  $n$ , is represented by the equation  $C = 25 + 15n$ .

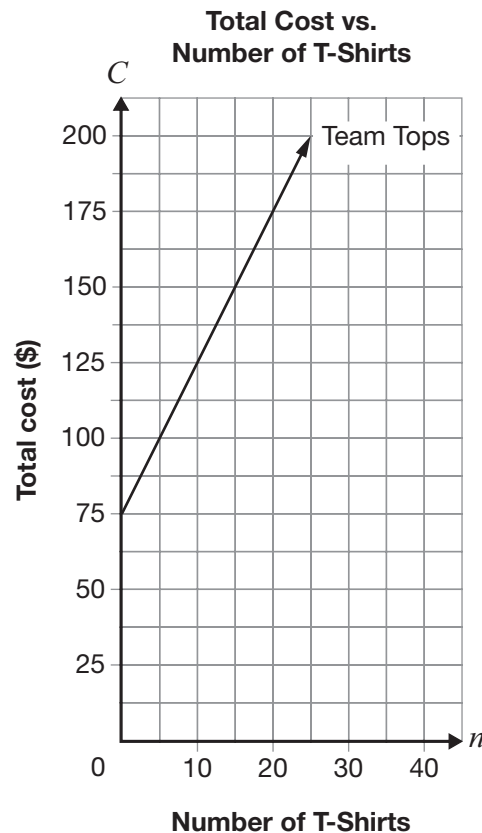
Due to fire codes, the number of guests cannot exceed 150.

What are all the possible values of the total cost for this situation?

The total cost can range from

- a \$25 to \$2275.
- b \$25 to \$3765.
- c \$15 to \$2275.
- d \$15 to \$3765.

- 18** The total cost for T-shirts at Team Tops is made up of a set-up fee and a charge for each T-shirt as represented by the graph.

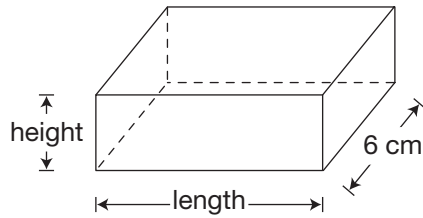


Super Shirts has no set-up fee but charges twice as much for each T-shirt as Team Tops.

Which of the following statements is true?

- a It is always cheaper to order from Super Shirts.
- b It is the same price to order 150 T-shirts from either company.
- c It is cheaper to order 10 T-shirts from Team Tops than from Super Shirts.
- d It is more expensive to order 20 T-shirts from Super Shirts than from Team Tops.

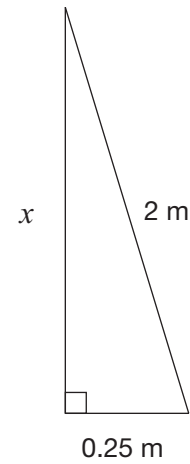
- 19** The rectangular prism pictured below has a volume of  $216 \text{ cm}^3$ .



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

- a 3 cm
- b 6 cm
- c 12 cm
- d 18 cm

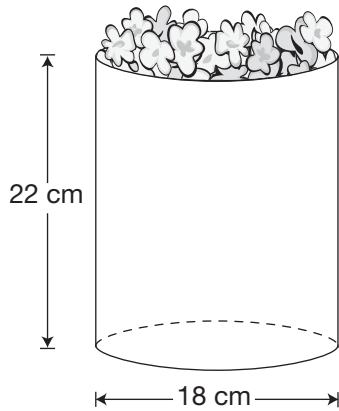
- 20** Which equation correctly uses the Pythagorean theorem to determine the value of  $x$  in the diagram?



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



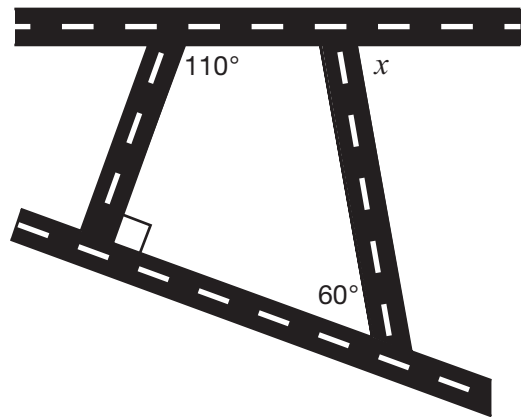
- 21** Paper is used to make a popcorn container in the shape of an open-topped cylinder, as pictured.



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

- 22** Four streets are pictured.



What is the value of  $x$ ?

- a  $60^\circ$
- b  $80^\circ$
- c  $100^\circ$
- d  $110^\circ$