EQAO

# Sample Test

## Grade 9 Assessment of Mathematics



Education Quality and Accountability Office

Information Centre: 1-888-327-7377 (Ontario)
416-916-0708 (outside Ontario)

info@eqao.com
eqao.com

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## ALTERNATIVE VERSION

The sample test consists of a total of 25 questions.

### Instructions



Make sure you have the Formula Sheet for reference.



It is recommended that you have a pencil, an eraser and paper for rough work.



Headphones are recommended if you will be using the text reader.



You can use your own scientific or graphing calculator.



Answer all questions to the best of your ability. If you leave a question blank, the question will be scored zero.

### Teacher Instructions

All students can choose to use manipulatives during the assessment. Teachers may provide students who have visual impairments with three-dimensional objects that represent those pictured in questions.

**1** Which expression is equivalent to $6x$?

**A** $3x - (-2x) + 4x$

**B** $-7x - (-9x) + 4x$

**C** $4x + 3x - 2x$

**D** $10x - 6x$

**2** An elevator is on the 9th floor of a building.

The elevator goes down 2 floors, up 6 floors, down 4 floors, up 1 floor, and up 1 more floor, where it stops.

At what floor did the elevator stop for the last time?

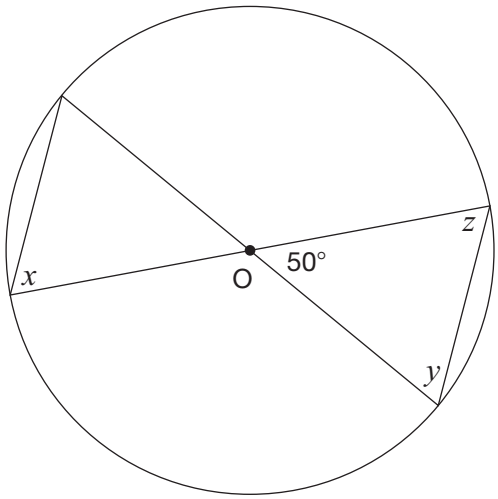
**A** 7th floor

**B** 8th floor

**C** 10th floor

**D** 11th floor

**3** What are the values of $x$, $y$ and $z$?




**A** $x = 50°, y = 50°, z = 50°$

**B** $x = 50°, y = 80°, z = 50°$

**C** $x = 65°, y = 65°, z = 65°$

**D** $x = 50°, y = 65°, z = 65°$

**4** Here are some details from a person's budget in January.

| | |
|---|---|
| **Net income** | $2515 |
| **Rent** | $950 |

In February, both the net income and rent increase by 2%.

How will the difference in net income and rent change in February compared with January?

**A** The person will have $69.30 more than in January.

**B** The person will have $31.30 less than in January.

**C** The person will have $31.30 more than in January.

**D** There is no change, as the increase in rent is equal to the increase in net income.

**5** When creating pseudocode, Gurdeep uses this expression.

**cost** $<$ (7 ***** **hours** $+$ 10)

What is **hours** an example of in this pseudocode?

**A** a constant

**B** an equation

**C** an inequality

**D** a variable

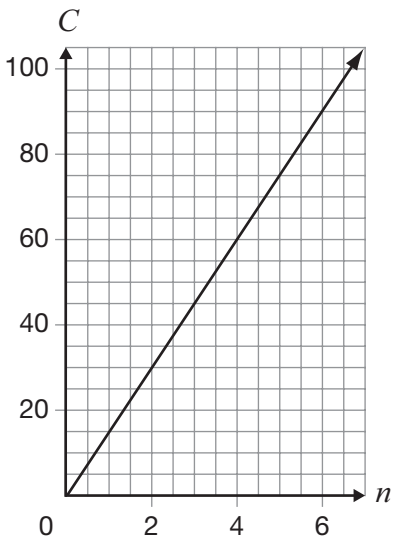
**6** Information about four linear relations is given.

Which linear relation has a different rate of change from the others?

**A** The cost of producing shirts is made up of a $10 initial fee, plus $15 per shirt.

**B** $C = 77 + 15n$

**C**




**D**

| $n$ | $C$ |
|---|---|
| 20 | 100 |
| 40 | 115 |
| 60 | 130 |

**7** For each set of numbers, the pattern is extended until it reaches the number 81.

Which set of numbers is the **most** dense?

**A** {1, 2, 3, 4,…}

**B** {3, 5, 7, 9,…}

**C** {1, 4, 9, 16,…}

**D** {4, 15, 26, 37,…}

**8** A teacher surveys 30 students randomly in a school to determine how many like reading fiction and biographies.

| | Like to read biographies | Do not like to read biographies |
|---|---|---|
| **Like to read fiction** | 16 | 8 |
| **Do not like to read fiction** | 4 | 2 |

If the 30 students are representative of the 600 students in the school, how many students in the school do **not** like to read fiction?

**A** 6

**B** 40

**C** 80

**D** 120

**9** Which point does **not** satisfy the inequality $6x - 7y \geq 18$?

**A** (10, 6)

**B** (8, 4)

**C** $(-1, -3)$

**D** $(2, -5)$

**10** The hand is a unit of measure that is still used today to measure the height of horses. One hand is approximately 10 cm in length.

Approximately how many hands would a horse be that is 162 cm tall?

**A** 2 hands

**B** 16 hands

**C** 162 hands

**D** 1620 hands

**11** A store offers a 30% discount off the original price of an item.

Two weeks later, the store offers an additional 40% off the **discounted** price of this item.

What is the final sale price of this item if its original price was $15.98?

**A** $4.79

**B** $6.71

**C** $14.06

**D** $15.28

**12** Three of these tables of values show information about linear relationships.

Which table shows information about a non-linear relationship?

**A**

| Time (hours) | Cost ($) |
|---|---|
| 0 | 10 |
| 1 | 20 |
| 2 | 30 |

**B**

| Time (hours) | Cost ($) |
|---|---|
| 0 | 100 |
| 30 | 150 |
| 60 | 200 |

**C**

| Time (hours) | Cost ($) |
|---|---|
| 20 | 100 |
| 35 | 200 |
| 40 | 300 |

**D**

| Time (hours) | Cost ($) |
|---|---|
| 100 | 500 |
| 200 | 400 |
| 300 | 300 |

**13** Together, Kai and Max have a total of 60 books.

Kai has 4 times as many books as Max.

How many books does Kai have?

**A** 12 books

**B** 15 books

**C** 45 books

**D** 48 books

**14** The number of pairs of shoes sold at a shoe store over eight days is given.

7, 9, 11, 14, 16, 17, 18, 21

What is the value of the first quartile of this data?

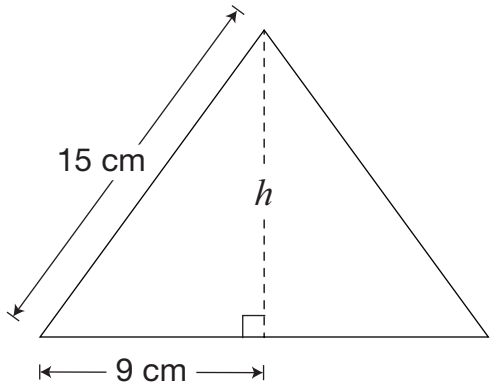
**A** 7

**B** 8

**C** 9

**D** 10

**15** What is the height, $h$, of the triangle?




**A** 6 cm

**B** 12 cm

**C** 17 cm

**D** 24 cm

**16** What is the value of this expression?

$$\frac{-2(5)}{16} + \frac{3(-2)}{8}$$

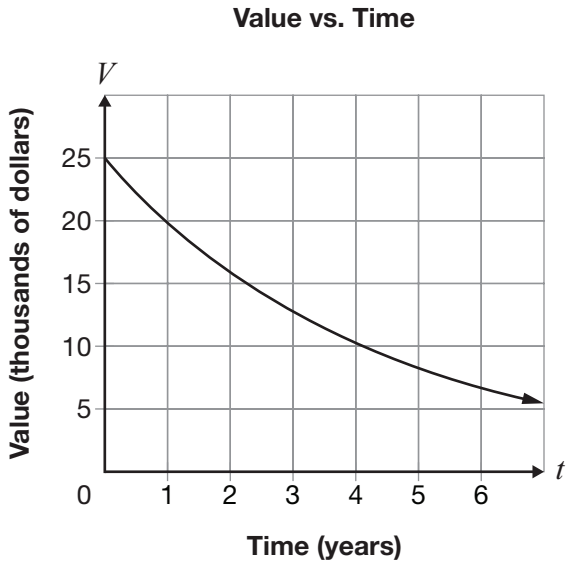
**A** $-\frac{4}{16}$

**B** $-\frac{9}{16}$

**C** $-\frac{4}{8}$

**D** $-\frac{11}{8}$

**17** This graph represents the value of a car over time.




Which statement is true based on this graph?

**A** This is an example of depreciation; the car was purchased for $20 000.

**B** This is an example of appreciation; the car was purchased for $20 000.

**C** This is an example of depreciation; the car was purchased for $25 000.

**D** This is an example of appreciation; the car was purchased for $25 000.

**18** A line represented by the equation $y = 2x$ is rotated by 90° about the origin.

Which equation represents the new line?

**A** $y = 2x$

**B** $y = \frac{1}{2}x$

**C** $y = -\frac{1}{2}x$

**D** $y = -2x$

**19** Cameron wants to select the Internet plan that has the lowest total cost for a 24-month period.

Each plan has a base fee and a monthly fee.

Which option **best** describes the strategy Cameron should use to choose his plan?

**A** Compare the base fees of the plans only.

**B** Compare the monthly fees of the plans only.

**C** Compare the cost of the plans for 24 days.

**D** Compare the cost of the plans for 2 years.

**20** This pseudocode is used to determine the value of a variable in an equation.

```
variableB = 0
variableC = 0
output "Enter the value of variable B."
store user input as variableB
output "Enter the value of variable C."
store user input as variableC
variableA = (4 * variableC − variableB)/2
output "The value of variable A is ", variableA, "."
```

What is the value of **variableA** if 4 is entered for **variableB** and 5 is entered for **variableC**?

**A** 18

**B** 13.5

**C** 8

**D** 5.5

**21** A student wants to save **half** of 8 weeks' total earnings during the summer.

Which job will help the student save at least $2500?

**A** a job that offers 25 hours a week at $20 per hour

**B** a job that offers 35 hours a week at $18 per hour

**C** a job that offers 37 hours a week at $16 per hour

**D** a job that offers 40 hours a week at $15 per hour

**22** A correlation coefficient, $r$, represents the strength of the relationship between two variables.

Which option represents the strongest positive relationship?

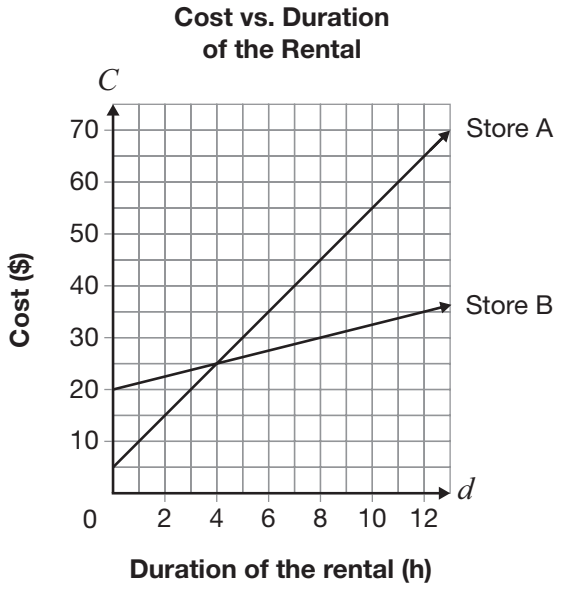
**A** $r = -1.0$

**B** $r = 0.95$

**C** $r = -0.25$

**D** $r = 0$

**23** This graph represents the rental cost of a pair of skates at two stores.




What is the difference between the base amount charged by each store?

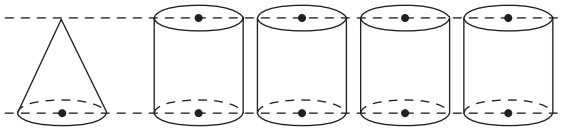
**A** $0

**B** $5

**C** $15

**D** $30

**24** This cone and these 4 cylinders each have the same radius and the same height.



The **total** volume of the 4 cylinders is 1200 $cm^3$.

What is the volume of the cone?

**A** 100 $cm^3$

**B** 150 $cm^3$

**C** 300 $cm^3$

**D** 400 $cm^3$

**25** Which is a simplified form of this expression?

$(n^3p^2)(np^5)$

**A** $n^3p^{10}$

**B** $n^3p^7$

**C** $n^4p^7$

**D** $n^4p^{10}$

**STOP**

**You have finished the sample test.**