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ONTARIO GRADE 9 MATH REVIEW EXAM

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STUDENT NAME: _____ DATE: _____

INSTRUCTIONS:

1. You may use a calculator where appropriate.
2. Show all work clearly for full marks.
3. Check your work before submitting.

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MULTIPLE CHOICE (Questions 1–5)

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Select the best answer and circle the letter corresponding to your choice.

1. Simplify the expression: $3(x + 4) - 2x$

- A. $x + 12$
- B. $x + 4$
- C. $3x + 12 - 2x$
- D. $x + 12 - 2x$

2. Which of the following represents the slope-intercept form of a linear equation?

- A. $Ax + By + C = 0$
- B. $y = mx + b$
- C. $y - y_1 = m(x - x_1)$
- D. $x^2 + y^2 = 25$

3. If $(2, 7)$ lies on the line $y = mx + 3$, what is the value of m ?

- A. 2
- B. 3
- C. 4
- D. 7

4. A right triangle has legs of length 6 cm and 8 cm. What is the length of the hypotenuse?

- A. 10 cm
- B. 14 cm
- C. $2\sqrt{10}$ cm
- D. 7 cm

5. Which expression is equivalent to $(x^2 - 9)$?

- A. $(x - 3)^2$
- B. $(x - 9)(x - 1)$
- C. $(x - 3)(x + 3)$
- D. $(x + 9)(x - 9)$

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SHORT ANSWER (Questions 6–10)

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Provide brief solutions and answers in the space provided.

6. Algebraic Manipulation

Expand and simplify: $(x + 2)(x - 3)$

Answer:

7. Solving Equations

Solve for x : $3x + 5 = 20$

Answer:

8. Mean and Median

The set of numbers is $\{5, 9, 3, 7, 6\}$.

(a) Calculate the mean.

(b) Calculate the median.

Answers:

(a) _____

(b) _____

9. Slope Calculation

Given two points: $A(-2, 4)$ and $B(2, -4)$, find the slope of the line passing through these points.

Answer:

10. Percent Applications

A store sells a jacket for $\$80$ plus 13% HST. How much is the total cost of the jacket (in dollars)?

Answer:

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EXTENDED RESPONSE (Questions 11–15)

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Show all reasoning steps. Complete sentences or well-labeled calculations are encouraged.

11. Linear Relations

A cell phone plan charges a monthly fee of \$20 plus \$0.10 per text message sent.

- (a) Write an equation to represent the monthly cost C (in dollars) for x text messages.
- (b) Determine the cost if a user sends 250 text messages in a month.
- (c) If another user pays \$45 per month, how many text messages did they send?
- (d) Draw the diagram for cost for x text

- (a)
- (b)
- (c)

12. Geometry – Perimeter and Area

A rectangle's length is $(x + 4)$ cm and width is $(x - 1)$ cm.

- (a) Write an expression for its perimeter.
- (b) Write an expression for its area.
- (c) If $x = 5$, determine the rectangle's perimeter and area.

- (a)
- (b)
- (c)

13. Pythagorean Theorem Problem

You have a right triangle with one leg measuring 12 cm and a hypotenuse measuring 20 cm.

- (a) Find the length of the other leg.
- (b) Justify your solution using the Pythagorean theorem.

- (a)
- (b)

14. Algebraic Word Problem

A landscaper charges \$25 per hour of labor plus a one-time fee of \$60 for materials.

- (a) Write a linear equation that represents the total cost T for h hours of labor.
- (b) If the total bill is \$235, how many hours did the landscaper work?

- (a)
- (b)

15. Financial Literacy

Maya invests \$500 in a savings account that earns 2.5% simple interest per year.

- (a) Write an expression for the amount of interest earned I after t years.
- (b) How much total money will Maya have in her account after 3 years?

- (a)
- (b)

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END OF EXAM

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