



# GRADE 9 MATHEMATICS (10F)

Final Practice Examination



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### Instructions

The final examination will be weighted as follows

Modules 1–4	25%
Modules 5–8	75%

The format of the examination will be as follows:

Part A: Multiple Choice	22 x 2 = 44 marks
Part B: Short Answer	28 marks
Part C: Long Answer	28 marks

Time allowed: 2 hours

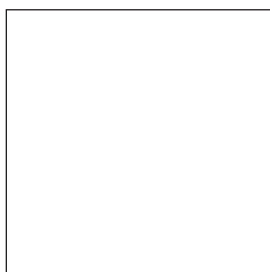
Supplies: pen, pencil, paper, scientific calculator, protractor, ruler

**Note:** See following page for instructions regarding use of algebra tiles.

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The questions on this practice exam are similar to the questions you will see on your final exam. If there are any questions that you do not understand, look in the lesson where the material is taught, and ask your tutor/marker or learning partner to help you.

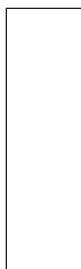
Use the following representations for algebra tiles.



$= -x^2$



$= x^2$



$= -x$



$= x$



$= -1$



$= 1$

Part A: Multiple Choice (22 x 2 = 44 Marks)

Circle the letter of the response that represents the correct answer.

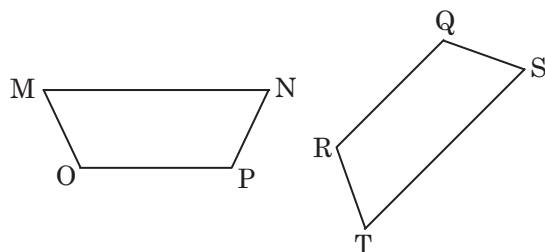
1. When you roll a 6-sided cube, numbered 1 to 6, the probability of rolling a 2 is  $\frac{1}{6}$ . This is an example of:
  - a) an experimental probability
  - b) theoretical probability
  - c) subjective reasoning
  - d) assumption
  
2. An image rotated around its centre point appears unchanged after  $180^\circ$  and  $360^\circ$  turns. This is an example of:
  - a) line symmetry
  - b) rotation symmetry
  - c) tessellation
  - d) vertex
  
3. You survey people as they leave a Blue Bomber game and ask them to identify their favourite sport. The potential problems or bias in data is caused by:
  - a) cultural insensitivity
  - b) cost concerns
  - c) ethical behaviour
  - d) time and timing
  
4. Given the following pattern of shapes, choose the mathematical expression showing the changes for each iteration if  $b$  is the number of boxes in the previous iteration.



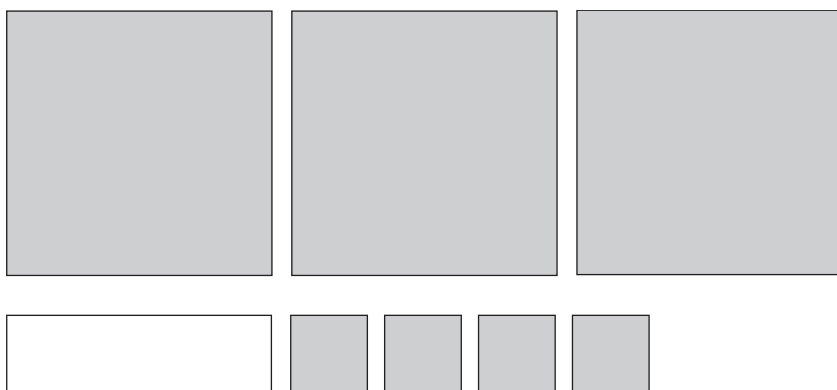
- a)  $b + 1$
- b)  $b + 2$
- c)  $b - 1$
- d)  $b - 2$

5. Add:  $\frac{3}{4} + \frac{1}{2} =$
- a)  $1\frac{1}{4}$
  - b)  $\frac{5}{4}$
  - c) neither (a) nor (b) above
  - d) both (a) and (b) above
6. Your income (I) is compared to the number of hours (H) you work. The variable, I, would
- a) be the dependent variable
  - b) be the independent variable
  - c) be constant
  - d) go on the  $y$ -axis
7. Give the base of the following power:  $-3^4$ .
- a) 3
  - b) -3
  - c) -12
  - d) -81
8. An inscribed angle has a measurement of  $75^\circ$ . A central angle shares the same endpoints. What is the measurement of the central angle?
- a)  $375^\circ$
  - b)  $75^\circ$
  - c)  $150^\circ$
  - d)  $225^\circ$
9. When simplified, what is the exponential form of the following expression:  $3^4 * 3^5 * 3^6$ ?
- a)  $3^{15}$
  - b)  $3^{120}$
  - c)  $9^{15}$
  - d)  $27^{15}$

10. If shapes MOPN and SQRT are similar, which proportion is true?

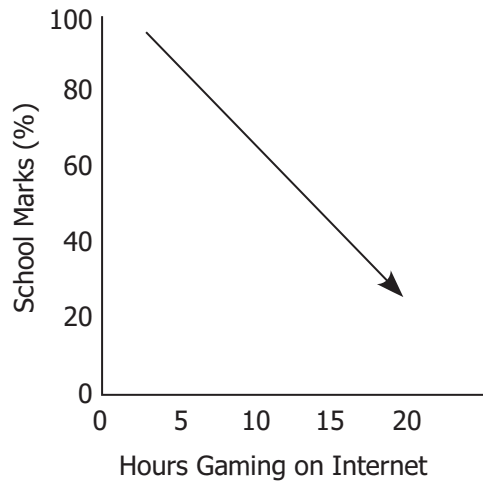


- a)  $\frac{MO}{RT} = \frac{MN}{RQ}$   
 b)  $\frac{MO}{RT} = \frac{OP}{TS}$   
 c)  $\frac{NP}{QS} = \frac{OP}{TS}$   
 d)  $\frac{MN}{ST} = \frac{MO}{SQ}$
11. A box of oranges costs \$2.25. Which equation would represent the total cost,  $C$ , of any number,  $n$ , of boxes of oranges?
- a)  $C = 2.25 + n$   
 b)  $C = 2.25 - n$   
 c)  $C = 2.25n$   
 d)  $C = \frac{2.25}{n}$
12. An expression representing this arrangement of tiles is:



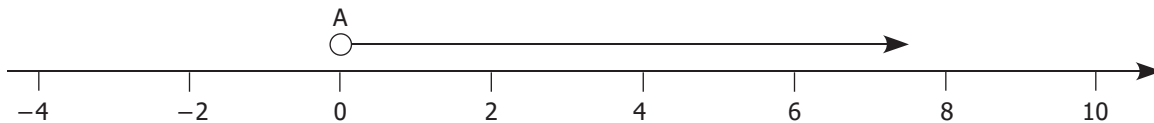
- a)  $-3x^2 + x - 4$   
 b)  $-3x^2 - x + 4$   
 c)  $3x^2 - x - 4$   
 d)  $3x^2 - x + 4$

13. Choose a sentence that describes in words what this graph is showing.



- a) increased hours gaming on the Internet increases school marks
- b) school marks decline based on increased hours gaming on the Internet
- c) hours gaming on the Internet do not affect school marks
- d) no hours gaming on the Internet guarantees you 100%

14. This inequality is read as:



- a) values less than 0
- b) values less than or equal to 0
- c) values greater than 0
- d) values greater than or equal to 0

15. Give the next value in the following pattern: 120   90   60   \_\_\_\_

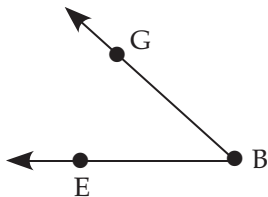
- a) 50
- b) 30
- c) 80
- d) 0.3



16. An inscribed angle that subtends, or has the same endpoints as a semicircle, will measure:

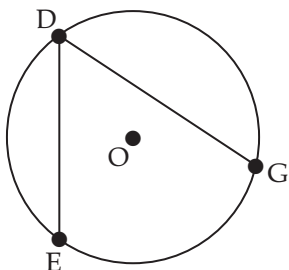
- a) half of  $90^\circ$
- b)  $90^\circ$
- c) double the measure of the semicircle
- d)  $180^\circ$

17. Find the measure of the angle below, using your protractor.



- a)  $42^\circ \pm 3$
- b)  $52^\circ \pm 3$
- c)  $32^\circ \pm 3$
- d)  $48^\circ \pm 3$

18.  $\angle EDG$  in this diagram is an example of a(n):

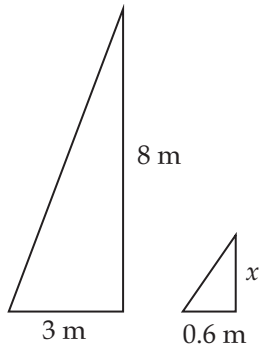


- a) right angle
- b) central angle
- c) perpendicular bisector
- d) inscribed angle

19. The formula for finding the circumference of a circle is:

- a)  $2\pi r$
- b)  $\pi r^2$
- c)  $\frac{b_1 + b_2}{2}$
- d)  $\frac{bh}{2}$

20. If these shapes are similar, what is the value of  $x$ ?



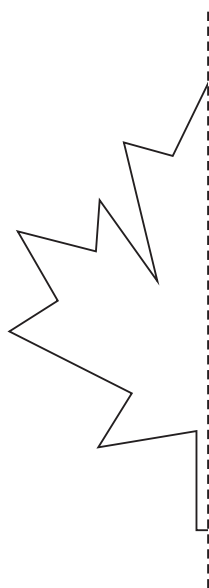
- a) 4 m
  - b) 1.6 m
  - c) 1.8 m
  - d) 18 m
21. Similar figures have:
- a) proportional sides and identical angles
  - b) proportional sides and angles
  - c) equal sides and proportional angles
  - d) sides that look the same
22. An object that repeats itself every  $120^\circ$  of rotation has rotation symmetry of order:
- a) 0
  - b) 1
  - c) 3
  - d) 4

Part B: Short Answer (28 Marks)

Answer the following questions. Show all work.

1. Solve  $4m - 2 = 5m + 7$  by isolating the variable. (2 marks)

2. Draw the reflected half across the line of symmetry. (2 marks)



3. You have a square tarp to cover your boat. The area of the tarp is  $49 \text{ m}^2$ . Find the length of one side. (2 marks)

4. Fill in the empty spots. (6 marks)

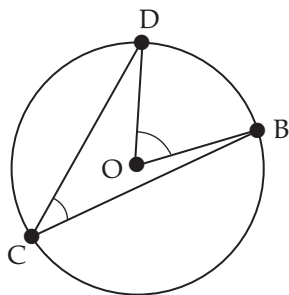
Term	Base	Exponent	Power
$2^5$	2		
$(-4)^3$		3	$(-4)^3$
$26^7$			$26^7$
$-3^6$		6	$-3^6$

5. Solve for g and graph your solution on a number line. (2 marks)

$$4g - 6 > 3g$$

6. When comparing profits to sales, identify which is the dependent variable, and explain why it is dependent. (4 marks)

7. Use your protractor to find the measurement of both  $\angle DCB$  and  $\angle DOB$  in the following diagram. (4 marks)



8. The length of the highway from Calgary to Vancouver is almost 1000 km. If you use a scale factor of 1 cm : 75 km, how long would the line representing this distance be on your drawing? (4 marks)
9. Describe the difference between the solution for  $4m = -28$  and  $4m \leq -28$ . (2 marks)

### Part C: Long Answer (28 Marks)

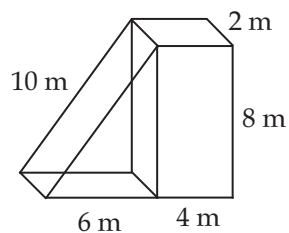
**Solve each of the following problems. Show all your work, and include written explanations where necessary.**

1. You want to determine the most common paint colour of cars and trucks in your town. Explain in detail how you would collect these data, and discuss why you chose that method. (4 marks)

2. Place the following rational numbers in order from smallest to largest. (3 marks)

$$\frac{5}{7} \quad -0.25 \quad \frac{-1}{3} \quad 0.001 \quad -0.01 \quad \frac{3}{4} \quad \frac{-2}{5}$$

3. Find the surface area of the following composite object. (4 marks)



4. You are working at a summer job to save money for the family winter trip to Florida. You want to have at least \$500 saved. If your wage is \$9.50 an hour, use a mathematical expression to find the minimum number of hours you will need to work to have enough money saved. (3 marks)

5. Isolate the variable, and draw a number line showing the solution to the following inequality. (4 marks)

$$6h + 4 \geq -2h + 16$$

6. Given the following diagram, identify the listed components. (6 marks)

a) 2 radii \_\_\_\_\_

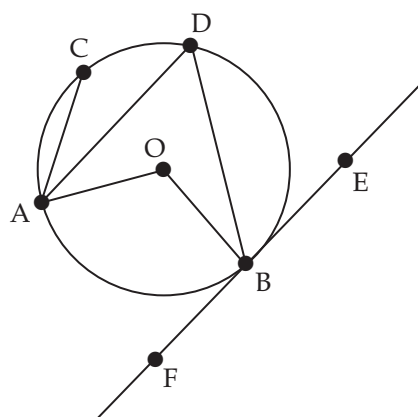
\_\_\_\_\_

b) tangent \_\_\_\_\_

c) 3 chords \_\_\_\_\_

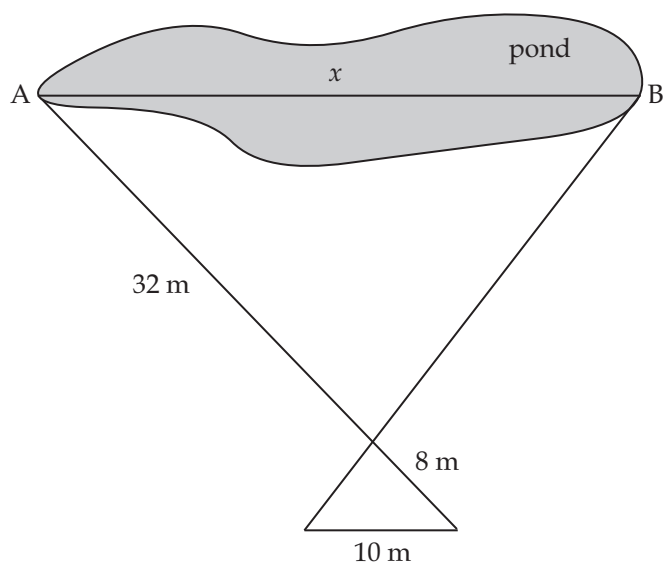
\_\_\_\_\_

\_\_\_\_\_





7. Use proportions based on the similar triangles below to find the distance across the pond from A to B. (4 marks)



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## NOTES