

Math 9
Practice Exam

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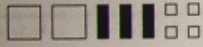
Answer Key

- F* 1. Haley will not go on a cruise because the boat may sink even though cruise ships are very rarely involved in accidents. Is her decision based on theoretical probability, experimental probability, or subjective judgment?
- a. Subjective judgment
 - b. Experimental probability
 - c. A combination of theoretical and experimental probability
 - d. Theoretical probability
- A* 2. Ms. Frizzle interviewed her students and asked each one how much he or she was given each week as an allowance. In this survey, which of the following might be a problem?
- a) Privacy
 - b) Timing
 - c) Use of Language
 - d) Cost
- D* 3. Which of the following data collection methods would provide the most accurate information about grade 9 students' lunch choices at a school?
- a) Survey a sample of students who eat lunch in the cafeteria
 - b) Survey all the students who eat lunch in the cafeteria
 - c) Survey a sample of all students in grade 9 in the school
 - d) Survey all grade 9 students in the school

b) Survey all the students who are in the school
 c) Survey a sample of all students in grade 9 in the school
 (d) Survey all grade 9 students in the school

A 4. A local political party wants to know what people think about a new by-law banning certain types of dogs. It sends out a newsletter to everyone in the district. The newsletter contains a questionnaire and readers are asked to return their responses by mail or email. Which sampling method was used?
 (a) Self-selected sampling c. Simple random sampling
 b. Systematic Sampling d. Cluster sampling

B 5. A large white square represents an x^2 -tile, a black rectangle represents a $-x$ -tile, and a small white square represents a 1-tile.
 Write the polynomial represented by this set of algebra tiles.


 $2x^2 - 3x + 4$

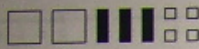
D 6. Which of the following expressions are polynomials?
 a. $-2x^2 + 3x + 4$ (b) $2x^2 - 3x + 4$ c. $2x^2 - x^3 + 4$ d. $2x - 3x^2 + 4$

i) $\frac{1}{2}x$ ✓
 ii) $1 - 5.5n^2$ ✓
 iii) $2\sqrt{t}$
 iv) 3.5 ✓

a. i, iii, and iv b. ii and iv c. i, ii, and iii (d) i, ii, and iv

A 7. Identify the polynomials that can be represented by the same set of algebra tiles.

5. A large white square represents an x^2 -tile, a black rectangle represents a $-x$ -tile, and a small white square represents a 1-tile.
Write the polynomial represented by this set of algebra tiles.



$$2x^2 - 3x + 4$$

6. Which of the following expressions are polynomials?
- a. $-2x^2 + 3x + 4$ b. $2x^2 - 3x + 4$ c. $2x^2 - x^3 + 4$ d. $2x - 3x^2 + 4$
- i) $\frac{1}{2}x$ ✓
 ii) $1 - 5.5n^2$ ✓
 iii) $2\sqrt{t}$
 iv) 3.5 ✓
- a. i, iii, and iv b. ii and iv c. i, ii, and iii d. i, ii, and iv

7. Identify the polynomials that can be represented by the same set of algebra tiles.
- i) $2x^2 - 5 + 6x$
 ii) $2x^2 - 6x + 5$
 iii) $-5 + 6x - 2x^2$
 iv) $6x - 5 + 2x^2$
- a. i and iv b. iii and iv c. ii and iv d. i and ii

8. Combine like terms. Sketch algebra tiles if it helps.

$9x^2 - 7x + 2x - 6x^2$

a. $-2x^2$ b. $3x^2 - 5x$ c. $2x^2 - 4x$ d. $3x^2 + 5x$

9. Subtract: $(3x - 7x^2 + 2) - (4x^2 - 5 + 6x)$

$3x - 7x^2 + 2 - 4x^2 + 5 - 6x$ $-3x - 11x^2 + 7$

a. $-11x^2 + 3x - 7$ b. $-11x^2 - 9x - 3$ c. $-11x^2 - 3x + 7$ d. $11x^2 + 3x - 7$

10. Multiply: $(-2)(4c^2 - 6c - 7)$

a. $-8c^2 - 12c - 14$ b. $2c^2 - 8c - 9$ c. $-8c^2 + 12c + 14$ d. $-8c^2 - 6c - 7$

11. Divide: $\frac{-20p^2 - 16p}{-4p}$

a. $5p - 4p$ b. $-5p - 4$ c. $5p + 4$ d. $9p$

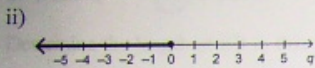
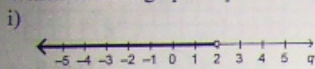
12. Solve: $9x - 15 = \frac{15}{3} + 15$

a. $\frac{46}{3}$ b. 9 c. -2 d. 2

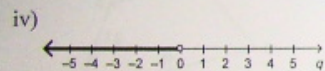
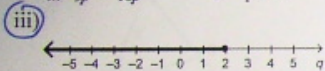
$9x = 18$

a. $q = -3\frac{3}{7}$ b. $q = \frac{1}{24}$ c. $q = -\frac{1}{24}$ d. $q = 3\frac{3}{7}$

15. Which of these graphs represent the solution of the inequality $q - 2 \leq 0$? ⁺²
 $q \leq 2$



- a. $5p^2 - 16p$ b. $5p + 4$ c. $80p^2 - 64$ d. $5p + 4p$



- a. Graph ii b. Graph iv c. Graph iii d. Graph i

16. Solve: $20 - 3t > 5$

- a. $t < -5$ b. $t > -5$ c. $t < 5$ d. $t > 5$

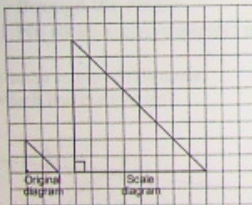
17. A bouncy castle company charges a flat rate of \$25, plus \$13 per hour. Shane has \$121.
Write an inequality to represent the number of hours, d , for which he can rent the bouncy castle.

- a. $25 + 13d > 121$
b. $25 + 13d \geq 121$

- c. $25 + 13d \leq 121$
d. $25 + 13d < 121$

$$25 + 13d \leq 121$$

18. Determine the scale factor for this scale diagram.



$$\frac{8}{2} = 4$$

a. 32

b. 8

c. 4

d. $\frac{1}{4}$

19. A ferris wheel has diameter 65m.
Determine the diameter on a scale diagram if the scale factor is 0.06.

a. 71 m

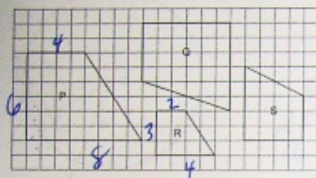
b. 3.9 m

c. 108 m

d. 39 m

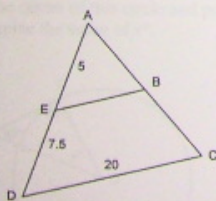
19. A ferris wheel has diameter 65m.
 Determine the diameter on a scale diagram if the scale factor is 0.06.
 a. 71 m **b. 3.9 m** c. 108 m d. 39 m

20. Identify similar quadrilaterals.



- a. P and Q **b. P and R** c. R and S d. Q and S

21. Determine the length of EB in this pair of similar triangles.



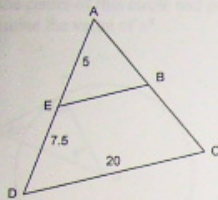
$$\frac{x}{20} = \frac{5}{12.5}$$

$$12.5x = 100$$

$$x = 8$$

- a. P and Q b. P and R c. R and S d. Q and S

21. Determine the length of EB in this pair of similar triangles.



$$\frac{x}{20} = \frac{5}{12.5}$$

$$12.5x = 100$$

$$x = 8$$

- a. 13.3 b. 10 c. 8 d. 5
22. When the shadow of a flagpole is 33.6 m long, a 1.8-m fencepost casts a shadow 2.8 m long. How tall is the flagpole?
- a. 52.3 m b. 21.6 m c. 21.6 m d. 12.6 m

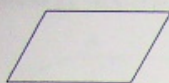


$$\frac{x}{1.8} = \frac{33.6}{2.8}$$

$$2.8x = 60.48$$

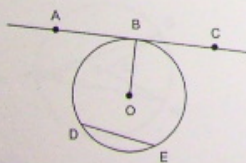
$$x = 21.6$$

23. Describe the rotational symmetry and line symmetry of this parallelogram.



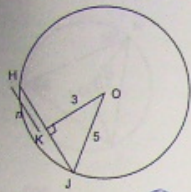
- a. Rotational symmetry of order 2 about the centre; no line symmetry
b. Rotational symmetry of order 2 about the centre; 1 line of symmetry through the centre
c. Rotational symmetry of order 1 about the centre; 1 line of symmetry through the centre
d. No rotational symmetry; no line symmetry

24. O is the centre of this circle.
Which line is a tangent?



AC

25. O is the centre of the circle.
Determine the value of n to the nearest tenth, if necessary.



$$c^2 = a^2 + b^2$$

$$5^2 = 3^2 + b^2$$

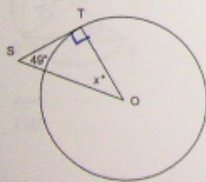
$$25 = 9 + b^2$$

$$16 = b^2$$

$$4 = b$$

- a. 16 **b. 4** c. 2 d. 5.8

26. O is the centre of this circle and point T is a point of tangency.
Determine the value of x° .

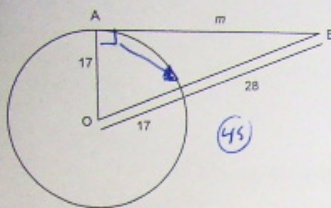


$$180 - 49 - 90$$

$$41$$

- a. 90° b. 139° c. 49° **d. 41°**

27. O is the centre of this circle and point A is a point of tangency. Determine the value of m . If necessary, give your answer to the nearest tenth.



$$c^2 = a^2 + b^2$$

$$45^2 = 17^2 + m^2$$

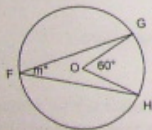
$$2025 = 289 + m^2$$

$$1736 = m^2$$

$$41.7 = m$$

- a. 28 b. 8.1 **c. 41.7** d. 48.1

28. O is the centre of this circle. Determine the value of m° .

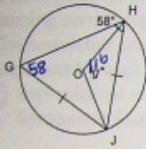


- a. 30°** c. 180°
b. 90° d. 60°

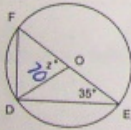
29. O is the centre of this circle.

- a. 30°
- b. 90°
- c. 180°
- d. 60°

29. O is the centre of this circle.
Determine the value of g° .



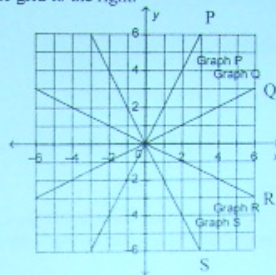
- a. 90°
 - b. 58°
 - c. 64°
 - d. 116°
30. O is the centre of this circle.
Determine the value of z° .



- a. 55°
- b. 110°
- c. 90°
- d. 70°

31. Match each equation with a graph on the grid to the right.

- a) $y = \frac{1}{2}x$ Graph: Q
 b) $y = -2x$ Graph: S
 c) $y = +2x$ Graph: P
 d) $y = -\frac{1}{2}x$ Graph: R



32. Complete the table of values for the following equation, then draw the graph.

$$y = 3x - 1$$

Show your work for the first two values of x.

x	y
-2	-7
-1	-4
0	-1
1	2
2	5

$$\begin{aligned} x &= -2 \\ y &= 3x - 1 \\ y &= 3(-2) - 1 \\ &= -6 - 1 \\ &= -7 \end{aligned}$$

$$\begin{aligned} x &= -1 \\ y &= 3x - 1 \\ y &= 3(-1) - 1 \\ &= -3 - 1 \\ &= -4 \end{aligned}$$

$$\begin{aligned} y &= 3(0) - 1 \\ &= -1 \end{aligned}$$

$$\begin{aligned} y &= 3(1) - 1 \\ &= 3 - 1 \\ &= 2 \end{aligned}$$

32. Complete the table of values for the following equation, then draw the graph.

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Show your work for the first two values of x .

x	y
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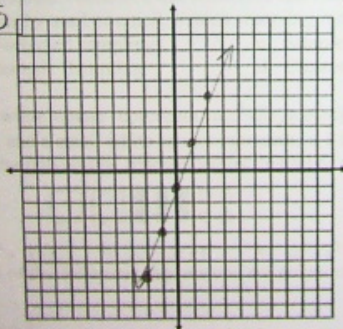
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-2	-7
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0	-1
1	2
2	5

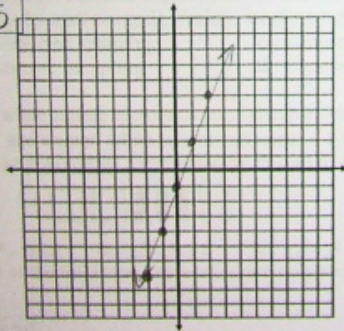
$$\begin{array}{l} x = -2 \\ y = 3x - 1 \\ y = 3(-2) - 1 \\ = -6 - 1 \\ = -7 \end{array}$$

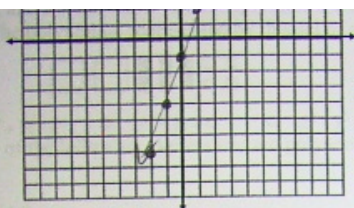
$$\begin{array}{l} x = -1 \\ y = 3x - 1 \\ y = 3(-1) - 1 \\ = -3 - 1 \\ = -4 \end{array}$$

$$\begin{array}{l} y = 3(0) - 1 \\ = -1 \end{array}$$

$$\begin{array}{l} y = 3(1) - 1 \\ = 3 - 1 \\ = 2 \end{array}$$

$$\begin{array}{l} y = 3(2) - 1 \\ = 6 - 1 \\ = 5 \end{array}$$





33. Jeff got a new cell phone for his birthday. His plan consists of a set fee of \$20, plus \$0.50 for each text.

- a) Write the **equation** that represents this linear relation.

$$y = 0.50x + 20$$

- b) What is the **cost** of Jeff sending 112 text messages each month?

$$\begin{aligned} y &= 0.50(112) + 20 \\ &= 56 + 20 \end{aligned} \quad y = 76$$

- c) Determine the **number** of messages he can send for \$150.

$$\begin{aligned} 150 &= 0.50x + 20 \\ 130 &= 0.50x \\ \frac{130}{0.50} &= \frac{0.50x}{0.50} \\ 260 &= x \end{aligned}$$