Name:_____ Period:_____ Date:_____

Math 9 Final Exam – Quint 4

PART A: Multiple Choice:

____ 1. Identify the variable in $5y - 6 - y^2$
a. y b. y, y^2 c. 5, 6 d. 5, -1 e. -6

____ 2. Identify the coefficient in $5y - 6 - y^2$
a. y b. y, y^2 c. 5, 6 d. 5, -1 e. -6

____ 3. Identify the constant in $5y - 6 - y^2$
a. y b. y, y^2 c. 5, 6 d. 5, -1 e. -6

____ 4. Identify the degree in $5y - 6 - y^2$
a. 5 b. -6 c. 1 d. 2

____ 5. Classify the type of polynomial $5y - 6 - y^2$
a. monomial b. binomial c. trinomial

____ 6. Identify a polynomial equivalent to $-3x^2 + 3x - 11$
a. $-3x + 3x^2 - 11$ b. $-3x + 3x^2 + 11$ c. $3x + 3x^2 - 11$ d. $3x - 11 - 3x^2$

____ 7. Which polynomial is modelled by each set of algebra tiles? 
a. $n^2 - n + 3$ b. $-w^2 - 3$ c. $2q + 2$ d. $2r^2 - 2r + 1$

____ 8. Simplify by combining like terms. $3x + 4 - 2x - 8 + 3x - 3$
a. $4x^2 - 7$ b. $4x - 1$ c. $4x^2 - 1$ d. $4x - 7$

____ 9. Add: $(p^2 + 3p + 5) + (3p^2 + p + 1)$
a. $p^2 + p + 3$ b. $2p^2 + 2p + 4$ c. $3p^2 + 3p + 5$ d. $4p^2 + 4p + 6$

____ 10. Subtract: $(3p^2 + 3p + 5) - (p^2 + p + 1)$
a. $p^2 + p + 3$ b. $2p^2 + 2p + 4$ c. $3p^2 + 3p + 5$ d. $4p^2 + 4p + 6$

____ 11. Determine the product: $5(1 - 2n + 3n^2)$
a. $5 - 2n + 3n^2$ b. $5 - 10n + 15n^2$ c. $5 - 10n + 3n^2$ d. $1 - 2n + 15n^2$

____ 12. Determine the product: $(5 - 10n + 15n^2) \div 5$
a. $5 - 2n + 3n^2$ b. $5 - 10n + 15n^2$ c. $5 - 10n + 3n^2$ d. $1 - 2n + 3n^2$

____ 13. $(-2) \times (-2) \times (-2) =$
a. 3^{-2} b. -2^3 c. 3^2 d. $(-2)^3$

____ 14. $3^2 \times 3^5 =$
a. 3^{-3} b. 9^{10} c. 3^7 d. 9^7

____ 15. The perimeter of a triangle with sides (x + 3), (x + 4) and 3x is…
a. 5x + 7 b. 2x + 7(3x) c. $x^2 + 3x + 12$ d. 2x + 3 = y

____ 16. The area of a rectangle with sides 4 and 12x is …
a. 48x b. 4 + 12x c. 16x d. 8x

____ 17. Which is a solution to the equation: $2x + 0.3 = 0.50$
a. 0.1 b. 0.2 c. 0.4 d. 10

____ 18. If $13x + 6 = 11x - 8$, then x must be equal to…
a. 7 b. -7 c. 4 d. -2

____ 19. Which is a solution to the equation: $\frac{t}{3} + 2 = -2$
a. 1 b. 0.2 c. 12 d. 4

____ 20. Identify the **incorrect** step in the following solution to $-3(1.1x - 0.5) = -8.4$

$-3(1.1x - 0.5) = -8.4$

a. $-3.3x + 1.5 = -8.4$
b. $-3.3x + 1.5 - 1.5 = -8.4 - 1.5$
c. $-3.3x = -9.9$
d. $\frac{-3.3x}{3.3} = \frac{-9.9}{3.3}$

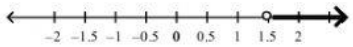
$x = -3.3$

Name:_____ Period:_____ Date:_____

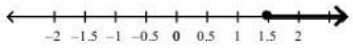
____ 21. A rectangle has a width of $r+3$ cm and a length of $2r+9$ cm. The perimeter of the rectangle is
a. 6cm b. 12cm c. r + 6 cm d. 6r + 24 cm

____ 22. The statement "10 years old or more" can be represented by the inequality
a. $a > 10$ b. $a \geq 10$ c. $a < 10$ d. $a \leq 10$

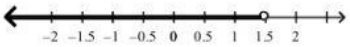
____ 23. Which number line represents the statement, x ≤ 1.5 kg?
a.



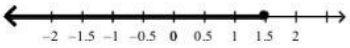
b.



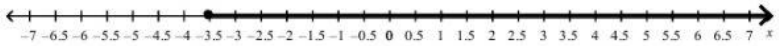
c.



d.



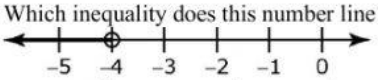
____ 24. Express the inequality algebraically.



a. $x > -3.5$ b. $x \geq -3.5$ c. $x < -3.5$ d. $x \leq -3.5$

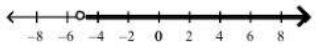
____ 25. What is a verbal representation of $n \geq -6$?
a. n is greater than or equal to –6.
b. n is greater than –6 but not including –6.
c. n is less than or equal to –6.
d. n is less than –6 but not including –6.

____ 26. Which inequality does this number line represent?

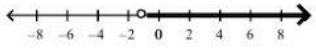


a. $x < -5$ b. $x < -4$ c. $x > -4$ d. $x > 5$

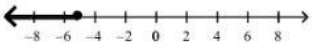
____ 27. Which number line represents the solution to $t + 2 > -3$?
a.



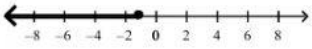
b.



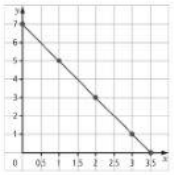
c.



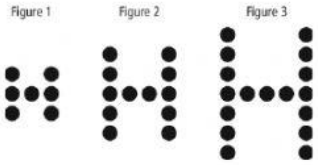
d.



____ 28. Which linear relation is represented by the following graph?
a. y = -x + 7 b. y = -x + 3.5 c. y = 7x + 3.5 d. $y = 2x - 7$



____ 29. Which table of values represents the number of dots in the pattern?



a.

Figure Number	Number of Dots
1	7
2	12
3	17

b.

Figure Number	Number of Dots
1	7
2	10
3	13

c.

Figure Number	Number of Dots
1	5
2	10
3	15

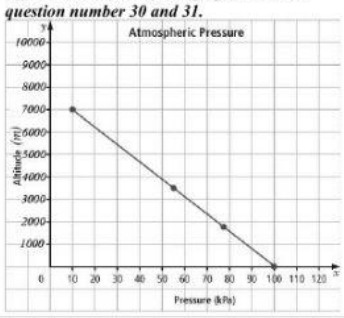
d.

Figure Number	Number of Dots
1	6
2	10
3	14

____ 30. When a mountain climber reaches an altitude of 1000 m, what is the approximate air pressure?
a. 78 kPa
b. 82 kPa
c. 88 kPa
d. 92 kPa

____ 31. If a balloonist measures the air pressure to be 80 kPa, at what approximate altitude was the measurement taken?
a. 1300 m
b. 1700 m
c. 2000 m
d. 2300 m

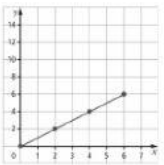
Assume that this graph shows air pressure at different altitudes. ***Use the graph to answer question number 30 and 31.***

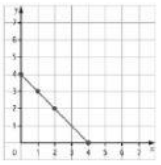


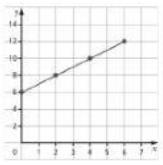
Name:_____ Period:_____ Date:_____

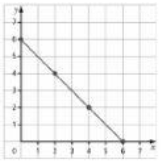
____ 32. Which graph represents the following table of values?

x	y
6	0
4	2
2	4
0	6

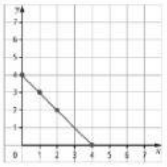
a. 

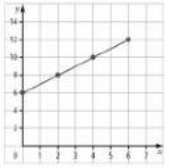
b. 

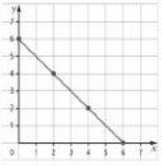
c. 

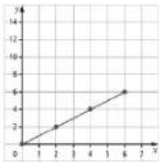
d. 

____ 33. Which graph represents the equation $y = -x + 6$?

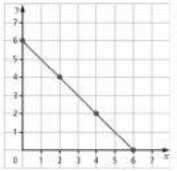
a. 

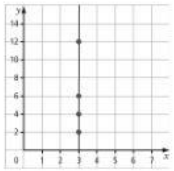
b. 

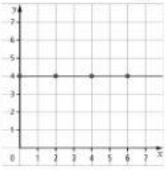
c. 

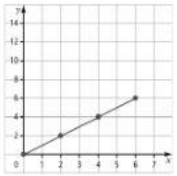
d. 

____ 34. Which graph represents a vertical line?

a. 

b. 

c. 

d. 

____ 35. Which of the following equations represents a horizontal line?

a. y = 3 b. 2y + 3 = x c. x = 3 d. 2x + 3 = y

____ 36. Solve the following: $5m = \frac{10}{3}$

a. $m = \frac{50}{3}$ b. $m = \frac{2}{3}$ c. $m = \frac{15}{10}$ d. m = 16.7

____ 37. Solve the following: -2.8d = 3.15

a. d = 1.125 b. d = 5.95 c. d = -1.125 d. d = -5.95

____ 38. Solve the following: 10 + (-2.5)x = 0

a. 10.5 b. -10.5 c. 4 d. -4

____ 39. Solve the following: $\frac{2}{3}x + \frac{1}{6} = 0$

a. $\frac{5}{6}$ b. $\frac{3}{9}$ c. $\frac{7}{6}$ d. $\frac{1}{4}$

____ 40. Solve the following: $\frac{4}{7}x \div \left(\frac{-2}{4}\right) = 4$

a. $\frac{-2}{7}$ b. $\frac{-28}{8}$ c. $\frac{-16}{14}$ d. $-\frac{8}{7}$

____ 41. Solve the following: $\left(\frac{4}{3}y\right) = \left(\frac{-2}{4}\right)$

a. $\frac{-3}{8}$ b. $\frac{-8}{12}$ c. $\frac{2}{7}$ d. $\frac{2}{-1}$

____ 42. Solve the following: (3r – 5) – (5r + 9) = 2

a. r = 1 b. r = -8 c. r = 2 d. $-\frac{1}{4}$

____ 43. Solve the following: $(b^2 + 5) + (2b^2 - 3)$

a. $5b^2 - 1b^2$ b. $4b^2$ c. $3b^2 + 2$ d. $b^4 - 15$

____ 44. Solve the following: (2b + 5) - (b – 3)

a. b + 8 b. b + 2 c. b - 2 d. $b^2 - 15$

____ 45. Solve the following: $1\frac{2}{3}x + \left(-2\frac{1}{6}\right)x$

a. $\frac{-3}{6}x$ b. $-1\frac{3}{9}x$ c. $\frac{-1}{2}x$ d. $\frac{1}{6}x$

Name:_____ Period:_____ Date:_____

Part B: Short Answer – <u>Show all your work in the spaces provided</u>

1. Solve the following equations. Show all of your work. Check your answers

a) $\frac{x}{0.6} + 2.5 = -1$

x =

b) $3(x-5) = 45$

x =

c) $\frac{2}{3}x = 2$

x =

d) $4 - 8x = 16 + 4x$

x =

e) $3(2m - 2) = 4(7 + 0.5)$

m =

f) $\frac{2x}{3} = \frac{2}{3} + \frac{3x}{5}$

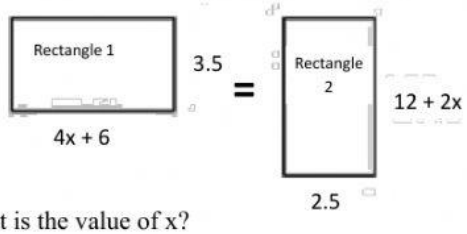
x =

2. The cost of a large cheese pizza is $12.25, plus $1.55 for each extra topping. If Ellen wants 5 extra toppings, how much will it cost? (Create an equation using variable c for total cost and variable t for number of toppings, then solve.)

Equation: ____ = ____ ____ ____

5 toppings cost: $

3. The two rectangles below have **<u>equal</u>** perimeters. (Perimeter of Rectangle 1 = Perimeter of Rectangle 2)



a) What is the value of x?

x =

b) What is the perimeter of each figure?

Perimeter of Rectangle 1 =

Perimeter of Rectangle 2 =

4. Solve the following inequalities then match each inequality to its number line.

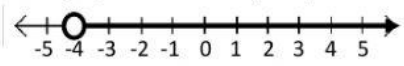
a) $6 - 2x > 4$ x

b) $\frac{2x}{4} > -2$ x

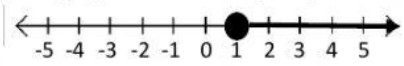
c) $2(2x - 3) \geq (x - 3)$ x

d) $x - \frac{1}{2} \leq 1 + \frac{1}{2}x$ x

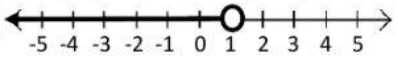
This graph matches inequality:



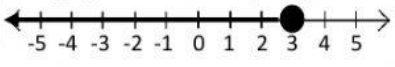
This graph matches inequality:



This graph matches inequality:

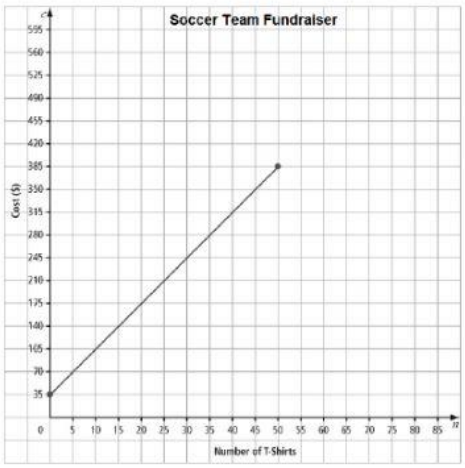


This graph matches inequality:



Name:_____ Period:_____ Date:_____

5. A soccer team is buying T-shirts to sell as a fundraiser. The team pays a flat fee of $35 for a logo design plus $7.00 per T-shirt. The graph represents the relationship between the number of T-shirts and the total cost.



a) Use the graph to find out how much it would cost to have 30 T-shirts produced.

$_____ for 30 t-shirts

b) Use the graph to determine how many T-shirts the team can order if they have $525.

_____ t-shirts for $525

6. A brick patio has 10 rectangular bricks in the first row. 2 bricks are added in each new row.

a) What equation represents the relationship between the row number, *r*, and the number of bricks, *n*? Write the equation in the table.

b) Fill in the table of values showing the relationship between the first 4 rows and the number of bricks in each row. Show your work in the table.

c) How many bricks are in the 9th row? Show your calculations in the table.

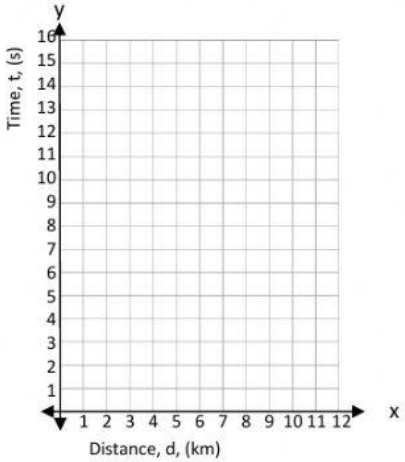
d) There are 68 bricks in the final row. How many rows of bricks are in the patio? Show your work in the table.

Row, r	**Equation:** ____ = ____ ____ ____	**Number of Bricks, n**
1		**10**
2		
3		
4		
9		
		68

7. You can approximate the distance between you and a lightning bolt by counting the number of seconds that pass before you hear the thunder. For every kilometre of distance between you and the lightning, the time that passes before you hear the thunder increases by 3 s.

a) Complete the following table of values.

Distance, *d* (km)	**Time, *t* (s)**		**Ordered Pairs (x, y)**
0	0	=	(,)
1	3	=	(,)
2	6	=	(,)
3		=	(,)
4		=	(,)
5		=	(,)



b) Graph the linear relation represented by the table of values by dragging and dropping the red dots onto the graph.

c) Using the graph, determine how much time passes before you hear the thunder at a distance of 4.5 km from the lightning strike.

_____ seconds pass before you hear the thunder.

d) Using the graph, determine how far away are you if you the thunder in 18s?

You are _____ km away.