Grade 9 Math Practice Midterm Examination

Section One: Selected Response

1. Which of the following numbers is a perfect square number?
   a) 0.0049 b) 0.049 c) 4.9 d) 490

2. What is the square root of $\frac{36}{81}$?

   a) 6 b) $\frac{6}{8}$ c) $\frac{6}{9}$ d) $\frac{1296}{6561}$

3. What is the square of $\frac{4}{9}$?

   a) 2 b) $\frac{2}{3}$ c) $\frac{8}{18}$ d) $\frac{16}{81}$

4. A square garden has an area of 31.5 m2. What's a good estimate for the side length?
   a) 5.6 b) 7.9 c) 15.8 d) 30

5. Which is the least power?
   a) 2^7 b) 7^2 c) 3^5 d) 5^3

6. What is 5^7 written as repeated multiplication?
   a) 5×7 b) 7×5 c) (7)(7)(7)(7)(7) d) (5)(5)(5)(5)(5)(5)(5)

7. Identify which statement is equivalent to 3^4

a) (3)(3)(3)(3) b) 12 c) (4)(3) d) 3+3+3+3

8. Evaluate -5^3
   a) -15 b) -125 c) 125 d) 15

9. In the expression $(-3)^5$, what is -3 called?
   a) Base b) Exponent c) Power d) Product

10. What would $\frac{\left[3^2 \times \left(3^0 \times 3^3\right)^4\right]^2}{\left[3^{12} \div 3^5\right]}$ be written as a single power?

    a) 3^{41} b) 3^{21} c) 3^{11} d) 3^1

11. What is -625 written as a power of 5?

a) -125 b) 5^4 c) -5^4 d) $(-5)^4$

12. Any power that has 0 as an exponent will evaluate to what answer?

a) 0 b) 1 c) -1 d) 10

13. Simplify. $-\frac{1}{3} \div \frac{5}{6}$

a) $-\frac{5}{18}$ b) $-\frac{2}{5}$ c) $\frac{5}{18}$ d) $\frac{2}{5}$

14. In what number sets would you find -2.5?

a) Integer b) Rational c) Whole d) Irrational

15. $\left(\frac{2}{3} - \frac{1}{6}\right)^2 - 4$

a) 0 b) $\frac{4}{15}$ c) $-\frac{15}{4}$ d) -4

16. A cell phone carrier charges a base amount of $27.50 per month and 1.8 cents per minute, how much would you be charged if you used 30.5 minutes?

a) $0.55 b) $55.00 c) $28.05 d) $82.50

17. On a test with 60 questions, ¼ of the questions are multiple-choice. Sam got $^2/_5$ of the multiple choice questions correct. How many multiple choice questions did Sam get correct?

a) 6 b) 10 c) 12 d) 15

18. Which number is the greatest?

a) -2.2 b) $-\frac{17}{8}$ c) $-\sqrt{5}$ d) $-\frac{32}{15}$

19. At 5 AM the temperature outside is 8 degrees. If the temperature increases on average 2.5 degrees an hour what should the temperature, in degrees Celsius, be at 12 noon?

a) 10.5 b) 17 c) 20 d) 25.5

20. Order 2.4, 2.03, $\frac{5}{2}$, $\frac{19}{8}$ from least to greatest.

a) $\frac{19}{8}$, 2.4, $\frac{5}{2}$, 2.03 b) 2.4, $\frac{5}{2}$, 2.03, $\frac{19}{8}$
c) 2.03, $\frac{19}{8}$, 2.4, $\frac{5}{2}$ d) $\frac{5}{2}$, 2.4, $\frac{19}{8}$, 2.03

21. How many slices of pepperoni, each $\frac{1}{16}$ inch thick, can be cut from a stick that is 12 inches long?

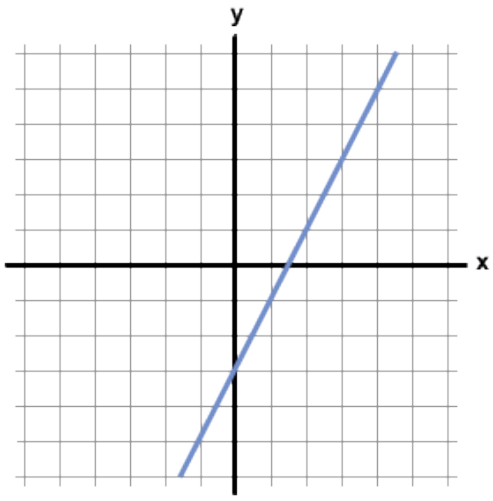
a) 96 b) 192 c) 288 d) 384

22. Which sentence is not true?

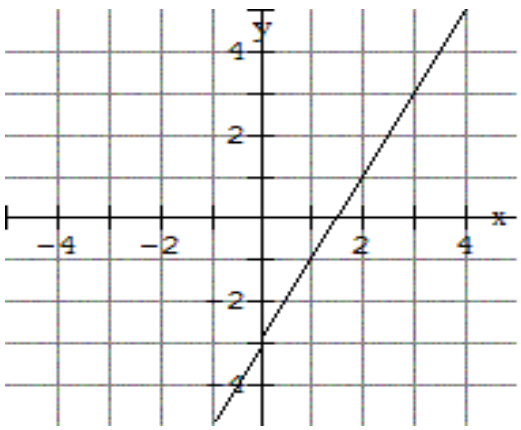
a) $\frac{5}{12} < \frac{21}{50}$ b) $4\frac{4}{9} = 4.\overline{4}$ c) $\frac{6}{7} > 0.85$ d) $-7.\overline{5} > -7.5$

23. Choose the correct equation for the following graph

a) y = 2x + 1
b) y = 2x – 3
c) y = -4 + 2x
d) y = 9 – 3x



24. Use the following graph to solve questions 26 and 27



25. When x is equal to 3, then y is equal to....

a) -3 b) 1 c) 2 d) 3

26. When y is equal to 2, then x is equal to....

a) -1 b) 0.5 c) 2.5 d) 3

27. Which equation would create the following table of values?

a) y = 4.50x + 100
b) y = 4.50x – 100
c) y = 100 – 4.50x
d) y = 100 + 4.50x

x	y
0	100
1	95.5
2	91
3	86.5
4	82
5	77.5

28. The equation C = 0.30m + 20 represents the cost of a monthly phone bill, where C equals cost and m equals number of minutes. Use this equation for #29 and #30.

29. How much will the bill be if you use 133 minutes?

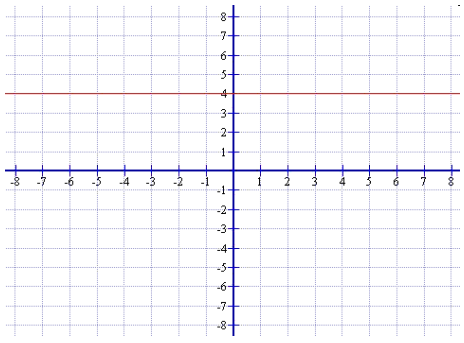
a) $19.90 b) $59.90 c) $53.50 d) $376.60

30. If the bill costs 35 dollars, how many minutes were used?

a) 30.50 b) 45 c) 50 d) 52

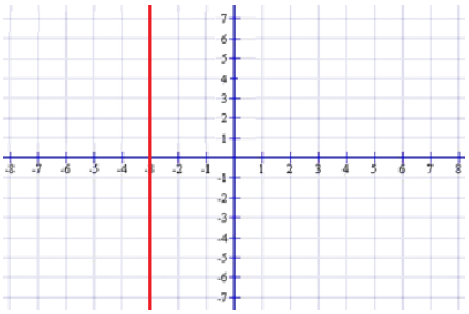
31. Determine the equation of the following graph.

a) x = -4
b) y = -4
c) x = 4
d) y = 4



32. Determine the equation of the following graph.

a) x = -3
b) y = -3
c) x = 3
d) y = 3



33. The equation 5 – y = 8 will create which one of the following graphs.

a) horizontal line y = -3 b) horizontal line y = 3
c) vertical line y = -3 d) vertical line y = 3

34. For the equation, A=2n+3, determine the value of A when n is 4.

a) 1/ 2 b) 5 c) 6 d) 11

35. In the equation x+2y= 10 what is the value of y when x is 6.

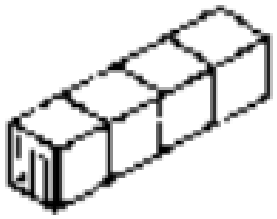
a) -2 b) 2 c) 4 d) 8

Section Two: Constructed Response

1. Samantha is answering a question on her Math Assignment and she states that the square root of 900 is 450. Is she correct? Explain your answer.

2. Write any number that has a square root between 2.3 and 2.4.

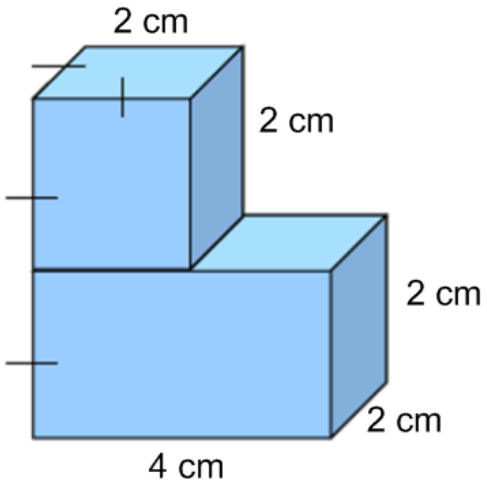
3. What is the surface area of the object below if each face is 1 cm^2?

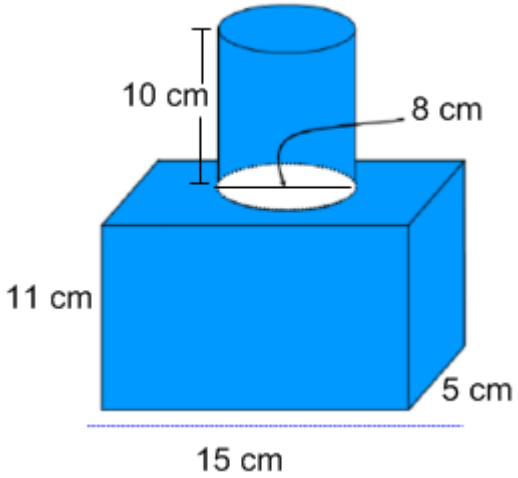


4. Solve each.

$(9)(8) - \left[14^4 \times 6^3 - \left(11^4 \div 3\right)^4\right]^0$ $\left[(3-5)^2 \times 5\right]^3 - (2)^3\left(4 \times 7^0\right)$ $\dfrac{\left[(9-6)^3 \times \left(3^2\right)^4\right]}{(12 \div 4)^8}$

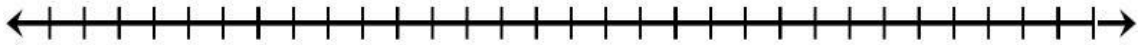
5. Determine the surface area of these composite shapes.





6. Find two rational numbers between $\frac{-17}{3}$ and -6.

7. Arrange these numbers on the number line. $-5.\overline{8}, -5\frac{4}{5}, -5.1, \frac{-21}{4}$



8. Solve

$\left(\frac{-5}{6}\right) \times \frac{1}{4} + \frac{5}{12}$ $-1.8 \div (-0.3) + \left[5.1 - \left(-\frac{29}{10}\right)\right]^2$

10. A bank account shows the following transactions for the Grade 9 Prom committee:

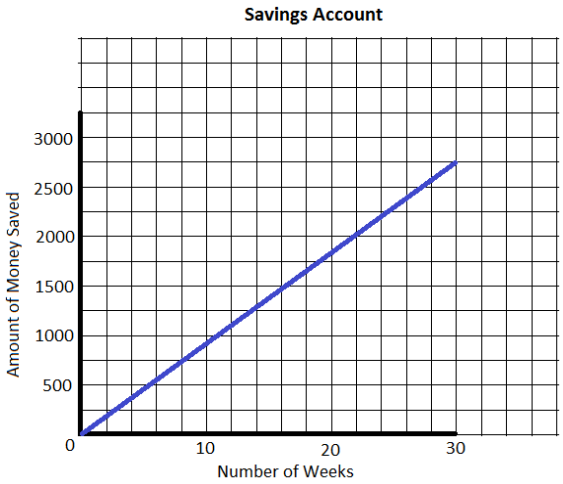
Jan. 1	Deposit	$225.50
Jan. 2	Withdrawal – DJ	$625.00
Jan. 3	Withdrawal - Decorations	$573.41
Jan. 4	Monthly Service Fee	$ 6.48
Jan. 5	Deposit – Fundraising	$964.56

A) The opening balance on Dec. 31st was $1105.55; determine the balance on Jan. 6th.

B) If the prom committee wants to rent a Bouncy Castle on Jan. 6 that costs $1495.60, how much more money will they need to cover the cost?

11. Stanley has a recipe which makes 36 chocolate chip cookies. The recipe requires 2 1/3 cups of oatmeal, 1 cup of chocolate chips, 2 1/2 cups of flour, 3 eggs, 1/2 cup of butter, 15 ml of baking powder, and 5 ml of salt. If he wants to adjust the recipe to make 48 cookies how many cups of oatmeal does he need?

12. This graph represents Rachel's savings account over the period of several weeks.



A) Estimate the amount of money Rachel has saved by week 18? Is this interpolation or extrapolation?

B) Estimate the amount of money she will have saved by week 35? Is this interpolation or extrapolation?

C) Predict how long it will take her to save $3500. What assumptions are you making?

13. Rachel has a blockbuster rewards membership. It costs $20 a year for the membership and each movie she rents costs her $4.80. Create a table that shows the cost for Rachel when she rents up to 5 movies.

Movies Rented	1	2	3	4	5
Cost ($)					

A) Write an equation that relates the cost, C, to the number of movies, n.

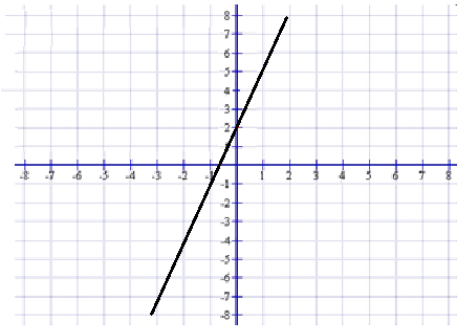
B) What will the charge be when if she rents 14 movies?

C) How many movies did she rent if she spent $130.40 ?

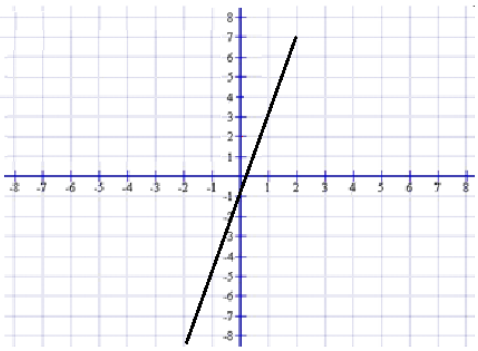
14. Match the following equations to the following graphs. Show ALL your workings.

a) $-2y + 2 = 4x$ b) $y - 3x = 2$ c) $4x - y = 1$ d) $- x – y = 4$

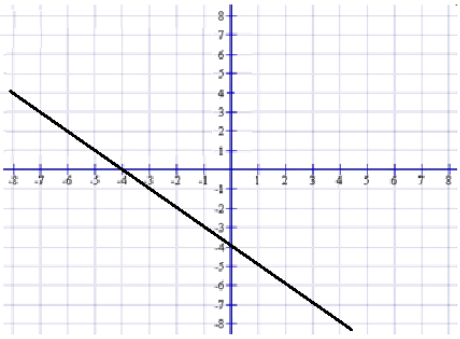
Graph 1



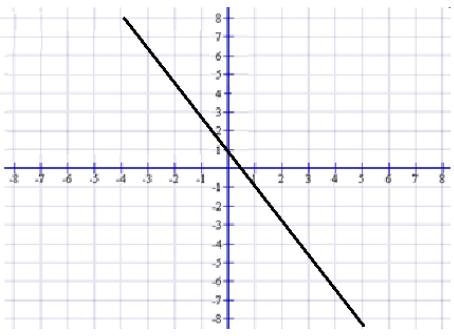
Graph 2



Graph 3



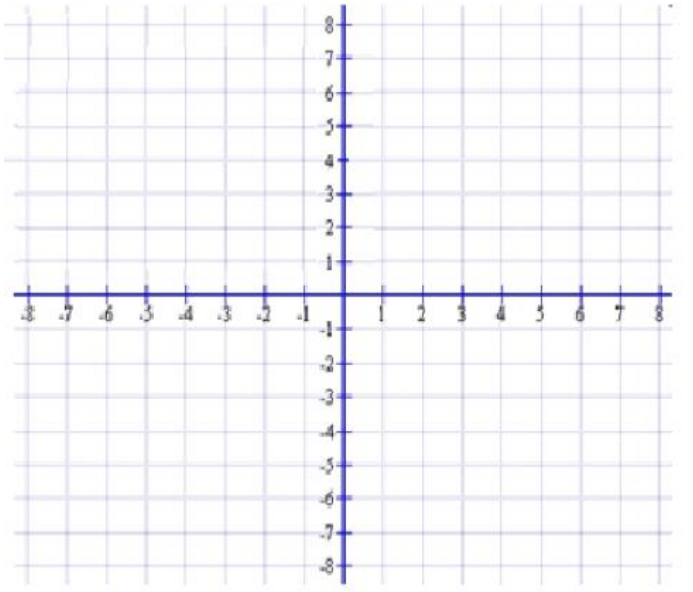
Graph 4



15. For each of the equations below: Fill in a table of values and graph.

$2x - y = 4$

x	y
-2	
0	
2	



$-x + 2y = 6$

x	y
-4	
0	
4	

[8]