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### MATH 9 - PRACTICE QUESTIONS for FINAL EXAM

All Questions are Multiple Choice

Circle the choice that best completes the statement or answers the question.

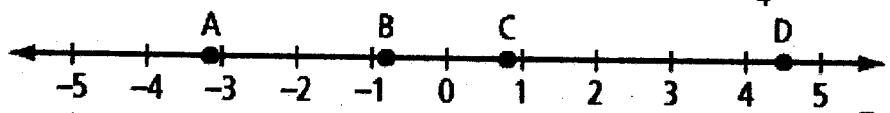
1. Which of the following represents these rational numbers in descending order?

- $\frac{6}{7}, 0.8, 0.\bar{6}, \frac{13}{14}$   $0.857$   $0.857$
- a.  $0.\bar{6}, 0.8, \frac{6}{7}, \frac{13}{14}$     b.  $\frac{6}{7}, 0.8, 0.\bar{6}, \frac{13}{14}$     c.  $0.\bar{6}, \frac{6}{7}, 0.8, \frac{13}{14}$     **d.  $\frac{13}{14}, \frac{6}{7}, 0.8, 0.\bar{6}$**

2. Which number will make the statement true?

- $0.625 > \frac{\square}{8}$
- a.  $7$   $0.875$     **b.  $4$**   $0.5$     c.  $5$   $0.625$     d.  $6$   $0.75$

3. Which point on the number line represents the rational number  $\frac{18}{4}$ ? = 4.5



- a. A    b. B    c. C    **d. D**

4. Which rational number falls between  $4\frac{5}{9}$  and  $4\frac{5}{11}$ ?  $4.45$

- a. 4.4    **b. 4.5**    c. 4.6    d. 4.7

5. Which decimal number is equivalent to  $\frac{3}{8}$ ?

- a. 0.125    b. 0.250    **c. 0.375**    d. 0.500

6. Calculate the value of  $-15.8 \div -7.9$

- a. 7.9    b. 2    **c. -2**    d. -7.9

7. Evaluate  $(-3.6) \times (4.2 \div 3.5)$ .

- a. -1.03    b. -2.52    **c. -4.32**    d. -6.52

8. One day, the temperature fell from  $3.5^\circ\text{C}$  to  $-5.2^\circ\text{C}$  in 3 hours. What was the temperature change per hour?

- a.  $-5.2^\circ\text{C/h}$     **b.  $-2.9^\circ\text{C/h}$**     c.  $0.57^\circ\text{C/h}$     d.  $3.5^\circ\text{C/h}$      $-8.7 \div 3$

9. What is  $\frac{20}{27} \div \frac{5}{9}$ ?

- a.  $\frac{3}{2}$      $\frac{420}{27} \times \frac{9}{5}$     **b.  $\frac{4}{3}$**     c.  $\frac{3}{4}$     d.  $\frac{2}{3}$

10. What is  $(\frac{6}{7} - \frac{1}{2}) \times \frac{14}{15}$ ?

- a.  $\frac{1}{3}$**      $\frac{12-7}{14}$     b.  $\frac{3}{5}$     c.  $\frac{14}{15}$     d.  $\frac{45}{15}$
- $\frac{5}{14} \times \frac{14}{15} = \frac{5}{15} = \frac{1}{3}$

11. What is the result of  $\frac{5}{9} - \frac{1}{6}$ ? =  $\frac{10}{18} - \frac{3}{18}$

a.  $\frac{23}{54}$       b.  $\frac{5}{12}$       c.  $\frac{7}{18}$       d.  $\frac{13}{36}$

12. What is  $\frac{2}{5} \times \left(\frac{2}{3} + \frac{1}{8}\right) \div \frac{8}{15}$ ? =  $\frac{2}{5} \times \left(\frac{16+3}{24}\right) \times \frac{15}{8}$  =  $\frac{2}{5} \times \frac{19}{24} \times \frac{15}{8}$

a.  $\frac{15}{52}$       b.  $\frac{23}{50}$       c.  $\frac{19}{32}$       d.  $\frac{29}{40}$

13. Which of these numbers is not a perfect square?
- a. 121      b. 99      c. 64      d. 36

14. What is the area of a square with a side length of 8 units?
- a. 32 units      b. 32 square units      c. 64 units      d. 64 square units

15. Belinda is building a fence around her deck. The deck has an area of 50 m<sup>2</sup>. It costs \$150 to build each metre of fencing. How much will Belinda spend, to the nearest whole dollar?
- a. ~~\$750~~ 1061      b. ~~\$1061~~ 7500      c. \$3750      d. ~~\$7500~~ 4243
- $A = 50$        $\sqrt{50} = 7.07$   
 $\times 4$   
 $\hline 28.28$   
 $\times 150$

16. Which of the following represents  $1 \times 1 \times 1 \times 1$  in exponential form?
- a. 1      b. 1<sup>4</sup>      c. 4      d. 4<sup>1</sup>

17. In the expression 5<sup>9</sup>, what does the number 5 represent?
- a. base      b. exponent      c. multiple      d. power

18. Evaluate the power (-3)<sup>5</sup>.
- a. 243      b. 15      c. -15      d. -243

19. What is the value of  $\frac{(-5)^6}{(-5)^3}$ ? =  $(-5)^3$  =

a. -5      b. -25      c. -125      d. -625

20. What is the value of  $\left(\frac{3}{8}\right)^0$ ?

a. 0      b.  $\frac{3}{8}$       c. 1      d.  $\frac{8}{3}$

21. Evaluate  $\left(-\frac{1}{2}\right)^{-4} \times \left(-\frac{1}{2}\right)^2$ .  $\left(-\frac{1}{2}\right)^{-2} = (-2)^2 = 4$

- a.  $\frac{1}{4}$       b.  $\frac{1}{2}$       c. 2      **d. 4**

22. What is  $9^3 \div (9-6)$ ?  $729 \div 3$

- a. 27      b. 75      c. 81      **d. 243**

23. What is  $(8+4)^2 - (4^3 - 2^5) \div 4$ ?

- a. 12       $12^2 - (64 - 32) \div 4$   
 b. 28       $144 - (32) \div 4$       **d. 136**

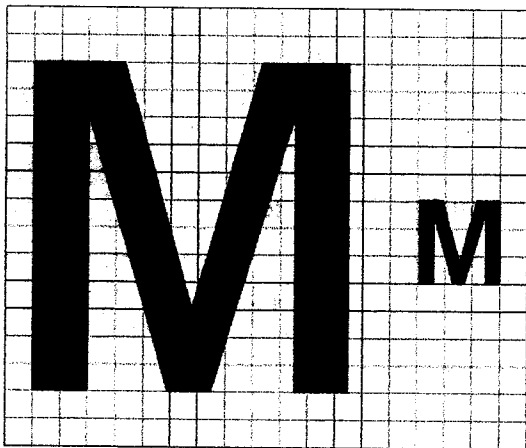
24. A colony of 500 bacteria triples in size every 1.5 h. Determine the size of the colony after 6 h.

- a. 2598  
 b. 3000  
 c. 20 250  
**d. 40 500**
- $\begin{matrix} 0 & 500 \\ 1.5 & 1500 \\ 3 & 4500 \\ 4.5 & 13500 \\ 6 & 40500 \end{matrix}$        $4 \rightarrow 4$  OR  $3 \times 500$

25. A scale of 2:5 means

- a. there are 2 units of the image for every unit of actual size  
**b. there are 2 units of the image for every 5 units of actual size**  
 c. there are 5 units of the image for every unit of actual size  
 d. there are 5 units of the image for every 2 units of actual size

26. The scale factor used to draw the letter on the right is

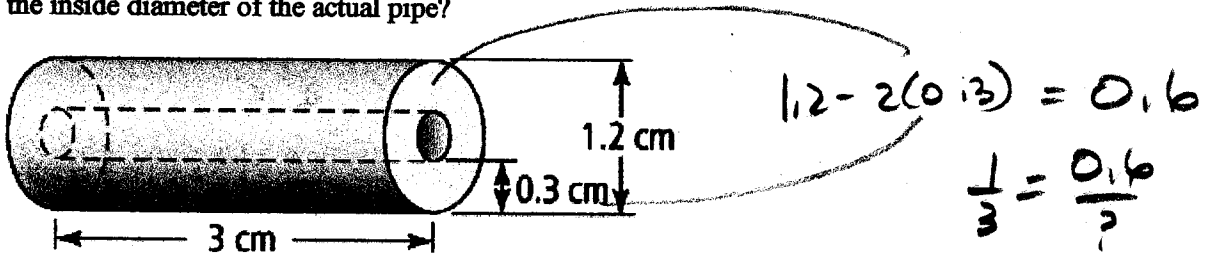


- a. equal to 0      b. equal to 1      c. greater than 1      **d. less than 1**

27. The image of a cell phone on a poster is 46 cm long. The actual cell phone is 11.5 cm long. Determine the scale used to create the poster.

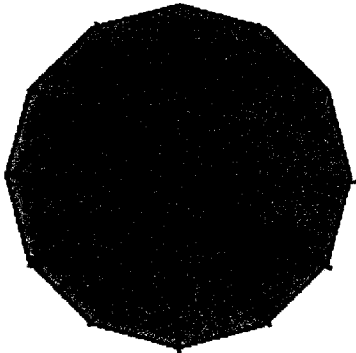
- a.  $\frac{1}{11.5}$       c.  $\frac{11.5}{46}$   
 b.  $\frac{1}{4}$       **d.  $\frac{4}{1}$**
- $\frac{\text{im}}{\text{Actual}} = \frac{46}{11.5} = \frac{4}{1}$

28. The scale diagram below shows a cross-section of a pipe. The scale used to create the diagram is 1:3. What is the inside diameter of the actual pipe?



- a. 0.9 cm    b. 1.8 cm    c. 2.7 cm    d. 3.6 cm

29. How many similar triangles would be formed if you joined all the opposite vertices so the lines pass through the centre of the figure?



- a. 4    b. 6    c. 12    d. 24

30. In the term  $4s^2t^2$ , the number 4 is best described as being the  
 a. coefficient    b. exponent    c. polynomial    d. variable

31. The expression  $3s^2 - 4s + 2$  can be described as a(n)  
 a. binomial    b. equation    c. polynomial    d. term

32. How many terms are there in the polynomial  $2c^2 + 3cd - 2d^2 + 5$ ?  
 a. 2    b. 3    c. 4    d. 12

33. What is the degree of the term  $9s^4t^3$ ?  
 a. 3    b. 4    c. 7    d. 9

34. The degree of the polynomial  $5m^4 + 2m^3 - m^2 + 3m + 7$  is  
 a. 2    b. 3    c. 4    d. 10

35. In the expression  $3h^2 + 5h - 7$ , the 2 is a(n)  
 a. coefficient    b. exponent    c. term    d. variable

36. Identify the like terms in the following list of terms.  $2g^2, 3gh, 2h^2, -4g^2, -5g^2h^2$

- a.  $2g^2$  and  $-4g^2$     c.  $2h^2$  and  $-5g^2h^2$   
 b.  $2g^2$  and  $2h^2$     d.  $3gh$  and  $-5g^2h^2$

37. Combine the like terms in  $4g^2 - 2g^2 + 2g - 3g + 7$ . The answer is

- a.  $2g^2 - 3g + 7$ 
 c.  $2g^2 + 5g - 7$   
 b.  $2g^2 - g + 7$ 
 d.  $6g^2 - g + 7$

38. Simplify the following expression by grouping like terms.  $2m - 3m^2 + 3m - 6 - m + 5m^2 + 2$

- a.  ~~$2(m^2 + m - 1)$~~   $2m^2 + 2m - 2$ 
 c.  $-3m^2 + 6m - 8$   
 b.  ~~$2(4m^2 + 3m - 2)$~~   $2m^2 + 4m - 4$ 
 d.  $-8m^2 + 5m - 4$

$$4m + 2m^2 - 4$$

39. What is the opposite expression for  $-3a^2 + 5a - 6$ ?

- a.  $3a^2 - 5a + 6$ 
 c.  $3a^2 + 5a - 6$   
 b.  $-3a^2 - 5a - 6$ 
 d.  $3a^2 + 5a + 6$

40. Subtract the following polynomials.  $(7j^2 - 2j) - (4j + 5)$

- a.  $7j^2 - 2j - 5$   
 b.  $7j^2 - 6j + 5$   
 c.  $7j^2 - 6j - 5$   
 d.  $7j^2 + 2j - 5$

$$-4j - 5$$

41. Simplify  $(4z^2 + 2z + 2) - (3z - 2z^2 - 3) + (2 + 5z + 3z^2)$ . The answer is

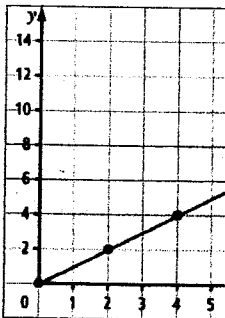
- a.  $3z^2 + 4z + 1$   
 b.  $6z^2 + 4z + 5$   
 c.  $9z^2 + 6z + 7$   
 d.  $9z^2 + 4z + 7$

$$-3z + 2z^2 + 3$$

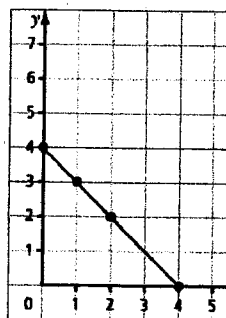
42. Which graph represents the following table of values?

6	0
4	2
2	4
0	6

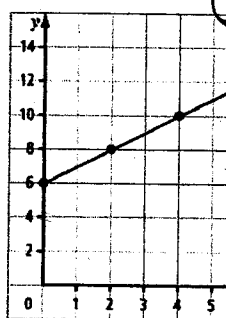
a.



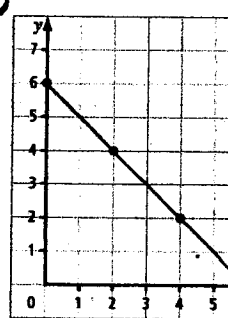
b.



c.

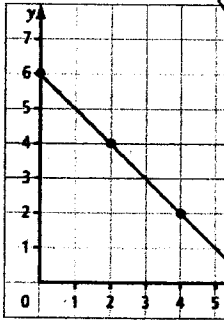


d.

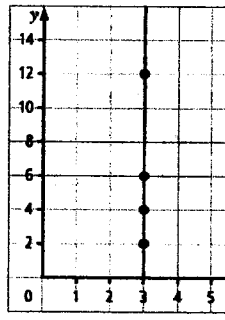


43. Which graph represents a vertical line?

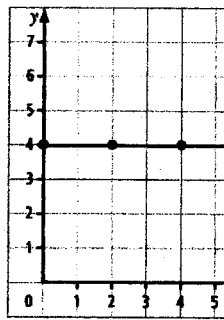
a.



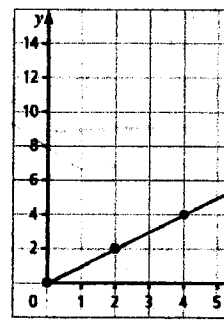
**b.**



c.



d.



44. Which table of values represents a horizontal line?

a.

x	y
0	4
1	3
2	2
4	0

b.

x	y
3	2
3	4
3	6
3	12

**c.**

x	y
1	4
2	4
3	4
4	4

d.

x	y
0	0
2	2
4	4
6	6

Pentagonal tables can be joined together to form larger tables. Use the tables to answer the following question(s).

Table 1



Table 2



Table 3



$$3x + 2$$

45. Which linear equation represents the number of people who can be seated at each combination of tables?

a.  $y = 4x + 1$

c.  $y = 2x + 3$

b.  $y = 6x - 1$

**d.**  $y = 3x + 2$

46. Determine the product of  $(2x)(3x)$ .

a.  $6x$

b.  $5x^2$

c.  $5x$

**d.**  $6x^2$

47. A rectangle has an area of  $18x^2$  m<sup>2</sup> and a length of  $3x$  m. What is the width of the rectangle?

a. 6

**b.**  $6x$

c.  $54x$

d.  $6x^2$

$$\frac{18x^2}{3x}$$

48. Which area model represents the multiplication statement  $(4x)(6x + 3.1) = 24x^2 + 12.4x$ ?

a. A rectangle with height  $4x$  and width  $6x + 3.1$ . The width is split into  $6x$  and  $3.1$ . Handwritten note:  $6x = 2.1$ .

b. A rectangle with height  $6x$  and width  $3.1 + 4x$ . The width is split into  $3.1$  and  $4x$ .

c. A rectangle with height  $3.1$  and width  $6x + 4x$ . The width is split into  $6x$  and  $4x$ .

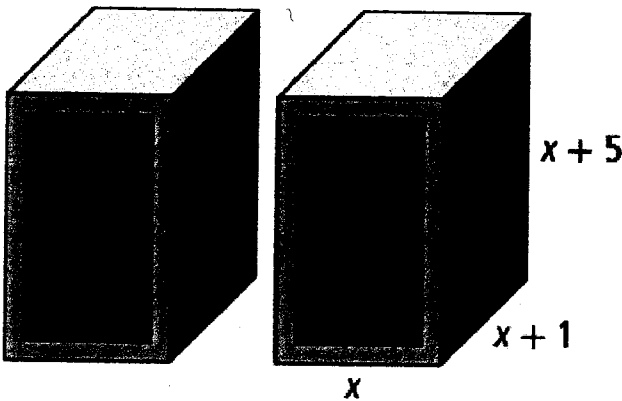
d. A rectangle with height  $4x$  and width  $3.1 + 6x$ . The width is split into  $3.1$  and  $6x$ .

49. An Internet service provider has projected the number of customers to be  $5m(5m + 30)$ , where  $m$  is the number of months after the business begins. What is the number of customers after 12 months?

- a. 1400
- b. 3600
- c. 4500
- d. 5400

Handwritten work:  
 $60(60 + 30)$   
 $60(90)$

50. Two identical speakers are shown below. What is an expression for the combined volume of the two speakers?



Handwritten work:  
 $(x+1)(x+5) \rightarrow x^2 + 6x + 5$   
 $x \rightarrow x^3 + 6x^2 + 5x$   
 double  $\rightarrow 2x^3 + 12x^2 + 10x$

- a.  $12x^2 + 48x + 20$
- b.  $6x^2 + 24x + 10$
- c.  $2x^3 + 12x^2 + 10x$
- d.  $x^3 + 6x^2 + 5x$

51. What is the unknown dimension of the rectangle shown below?



Handwritten work:  

$$\begin{array}{r} 9.3x^2 - 3x \\ \hline 3x \quad 3x \end{array}$$

- a.  $3.1x + 1$
- b.  $3.1x - 1$
- c.  $3.1x$
- d.  $3.1$

52. A rectangle has a width of  $r+3$  cm and a length of  $2r+9$  cm. The perimeter of the rectangle is
- a. 6 cm  
b. 12 cm  
c.  $r+6$  cm  
d.  $6(r+4)$  cm
53. Solve  $4f=11$ .
- a.  $f=0.28$   
b.  $f=0.36$   
c.  $f=2.5$   
d.  $f=2.75$
54. Solve  $\frac{10.85}{a}=3.5$ .
- a.  $a=0.31$   
b.  $a=0.323$   
c.  $a=3.1$   
d.  $a=37.975$
55. Solve the following:  $5s+4=22$ .
- a.  $s=2.4$   
b.  $s=3.6$   
c.  $s=18$   
d.  $s=22$
56. Solve  $7.2b+6.4=43.12$ .
- a.  $b=5.1$   
b.  $b=6.88$   
c.  $b=13.6$   
d.  $b=29.52$
57. Solve  $\frac{5.7c}{2.3}-4.2=33.819$ .
- a.  $c=0.652$   
b.  $c=2.48$   
c.  $c=15.341$   
d.  $c=38.019$
58. Solve  $5(2.6p+3.9)=5$ .
- a.  $p=-1.1$   
b.  $p=-3.9$   
c.  $p=-7.8$   
d.  $p=-13$
59. Solve  $2.3t=5t-9.99$ .
- a.  $t=-1.37$   
b.  $t=1.37$   
c.  $t=3.7$   
d.  $t=4.34$
60. Solve  $5z+3=2z+6$ .
- a.  $z=0.43$   
b.  $z=1.00$   
c.  $z=1.29$   
d.  $z=3.00$
61. What is  $3(5x+3)=2(3x+18)$ ?
- a.  $x=3$   
b.  $x=5$   
c.  $x=9$   
d.  $x=27$

$$\left. \begin{array}{l} 2r+6 \\ 4r+18 \end{array} \right\} 6r+24$$

$$-4 \div 5$$

$$\begin{array}{r} -6.4 \\ \div 7.2 \end{array}$$

$$+4.2, \times 2.3, \div 5.7$$

$$\div 5, -3.9, \div 2.6$$

$$-5t, \div \text{coeff of } t$$

$$-2z, -3, \div \text{coeff of } z$$

dist. prop.  
- x term to left  
- constant to right  
+ coeff of variable



62. Therese wants to start her solution to the equation shown by using multiplication. To do this, she should

$$\frac{2z}{4} = \frac{8}{5}$$

- a. multiply both sides by 2
- b. multiply both sides by 4
- c. multiply the left side by 4 and the right side by 5
- d. multiply the left side by 8 and the right side by 2

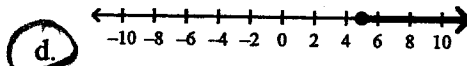
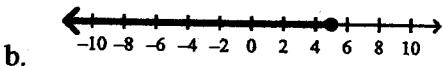
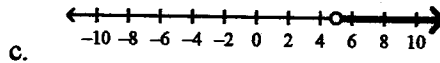
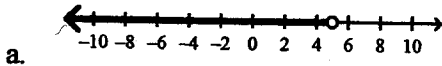
63. The average amount of daylight per day in Calgary is 14.6 h. The average amount of daylight per day in Vancouver is 3.4 h more than half the number of hours in Calgary. The average amount of daylight per day in Vancouver is:

- a. 7.3 h
- b. 10.7 h
- c. 11.2 h
- d. 18 h

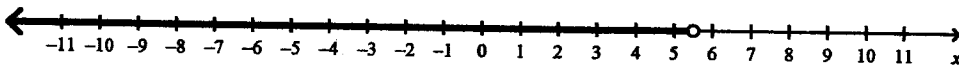
$$3.4 + \frac{1}{2}(14.6)$$

$$3.4 + 7.3$$

64. Which number line can represent the statement, "Only children at least 5 years old may swim in the wave pool"?

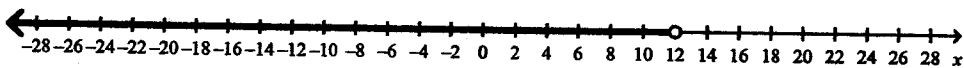


65. Determine the inequality represented by the number line below.



- a.  $x > 5.5$
- b.  $x \geq 5.5$
- c.  $x < 5.5$
- d.  $x \leq 5.5$

66. Write a word statement to represent the inequality shown.



- a. A number is greater than 12.
- b. A number is greater than or equal to 12.
- c. A number is less than 12.
- d. A number is less than or equal to 12.

67. Emerson keeps at least \$55 in his savings account. Represent this statement algebraically.

- a.  $s > 55$
- b.  $s \geq 55$
- c.  $s < 55$
- d.  $s \leq 55$

68. Solve  $t - 3.2 \leq 5.6$ ,  $+3.2$

- a.  $t \leq 2.4$   
b.  $t \geq 8.8$

- c.  $t \leq 8.8$   
d.  $t \geq 2.4$

69. Solve  $7 < \frac{1}{2}x$

- a.  $x < 3.5$   
b.  $x < 14$

- c.  $x > 14$   
d.  $x > 3.5$

70. A pizzeria has enough cheese to make a maximum of 132 pizzas a night. If 56 cheese pizzas are ordered, what is the maximum number of pepperoni and cheese pizzas the pizzeria can make?

- a.  $p \leq 132$   
b.  $p \geq 132$

- c.  $p \geq 76$   
 d.  $p \leq 76$

$132 - 56 = 76$

71. What is the solution to  $-14\frac{3}{5} + x > 15\frac{7}{10}$ ?  $+14\frac{6}{10}$

a.  $x > 1\frac{1}{10}$

b.  $x < 1\frac{1}{10}$

c.  $x > 30\frac{3}{10}$

d.  $x < 30\frac{3}{10}$

72. Which is the solution to  $\frac{x}{-5.1} > -2.4$ ?

- a.  $x > 12.24$   
 b.  $x < 12.24$

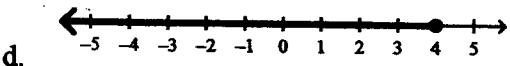
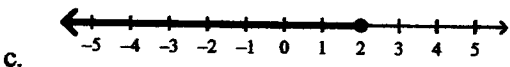
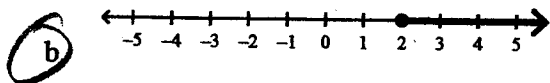
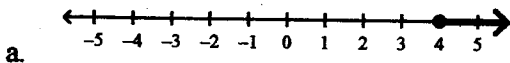
$\times -5.1$

- c.  $x > -12.24$   
d.  $x < -12.24$

73. What is the solution to the inequality  $8 - 3x < 5$ ?

- a.  $x > 1$   
b.  $x < 1$   
c.  $x < -1$   
d.  $x > -1$

74. Which number line represents the solution to  $10 - 6c \leq 2(c - 3)$ ?



$10 - 6c \leq 2(c - 3)$   
 $-4c \leq -8$   
 $c \geq 2$

75. A clothing store makes 200 sales on Saturdays. This is 50 sales more than 2 times the maximum number of sales on a Wednesday. What is the number of sales made on a Wednesday?

- a.  $s \geq 75$   
 b.  $s \leq 75$

- c.  $s \geq 150$   
d.  $s \leq 150$

$200 \geq 50 + 2s$   
 $150 \geq 2s$   
 $75 \geq s$

# MATH 9 - Finance and Data Analysis Questions - review MC for FINAL

## Multiple Choice

CIRCLE the choice that best completes the statement or answers the question.

Leya opened a bank account for the first time after starting her first job as a server. Her online banking statement is shown below.

Date	Details	Debits (-)	Credits (+)	Balance
Nov 2	Electronic funds transfer – Mad about Movies	14.50		77.62
Nov 4	Electronic funds transfer – Pay Dogs R Us		132.05	224.17
Nov 7	Debit – McBurger	10.00		214.17
Nov 7	Service charge	2.00		212.17
Nov 15	Preauthorized debit – Clear Phone Mobile	47.00		165.17
Nov 16	ATM withdrawal	40.00		125.17
Nov 16	ATM charge	3.00		122.17
Nov 18	Electronic funds transfer – Refund Computown		111.29	233.46
Nov 19	Village Organics	19.81		213.65
Nov 19	Player's Theatre	21.00		192.65
Nov 20	Service charge	2.00		190.65
Nov 25	Electronic funds transfer – Pay Dogs R Us		132.05	322.70
Nov 27	Electronic funds transfer		20.00	342.70
Nov 28	Interest		0.17	342.87

- What is the sum of Leya's debits for the month?
  - \$395.56
  - \$159.31
  - \$157.31
  - \$155.31
- What is the sum of Leya's credits for the month?
  - \$263.51
  - \$395.56
  - \$395.39
  - \$159.31
- What is the total amount of Leya's bank charges for the month?
  - \$0.17
  - \$4.00
  - \$2.00
  - \$7.00
- Determine 25% of \$76.
  - \$1.90
  - \$0.19
  - \$57
  - \$19

5. Francine mows lawns in the neighborhood and earns \$17.50 per lawn. This week she mows 7 lawns and also receives \$120 as a birthday gift. Francine decides to use a maximum of 20% of her income as spending money. What is her maximum amount of spending money for the week?
- a. \$24.50  
b. \$194.00  
c. \$27.50  
d. \$48.50
6. A carpenter's apprentice earns \$122.06 and works 5.25 hours. What is the hourly wage for the carpenter's apprentice?
- a. \$22.25/hour  
b. \$23.00/hour  
c. \$23.25/hour  
d. \$24.25/hour
7. Kai invests \$900 for 3 years at 1% simple interest per year. What is the final value of her money at the end of the investment period?
- a. \$918.00  
b. \$936.00  
c. \$927.00  
d. \$902.70
8. A group of students are surveyed to determine their favourite sport. They are surveyed as they leave the gym after a basketball game. This is an example of
- a. bias  
b. poor timing  
c. inappropriate use of language  
d. cultural insensitivity

$$242.50 \times .2$$

$$122.06 \div 5.25$$

$$900 \times 3 \times 0.01$$

→ Answer the following <sup>2</sup> question(s) using the information from the scenario below.

The owner of a pet store in a shopping mall wants to conduct a survey. She decides to survey the first 100 people who pass her store as soon as the mall opens. She chooses this time because her store is not busy first thing in the morning.

9. This is an example of a
- a. random sample  
b. convenience sample  
c. systematic sample  
d. voluntary response sample
10. If she walked around the mall and surveyed every tenth person, this would provide a
- a. systematic sample  
b. voluntary response sample  
c. convenience sample  
d. random sample
11. The entire population of your school was surveyed to determine the most common hair colour. The survey results are shown in the following table. What is the approximate probability that a randomly selected student will have black hair?

Hair Colour	Total
Black	150
Brown	190
Blond	70
Red	55
Other	35

$$\frac{150}{500}$$

- a. 38%  
b. 14%  
c. 30%  
d. 11%