

# **MATH 9A – FINAL EXAM REVIEW**

1. Simplify using order of operations. (BEDMAS)

a)  $8 + 10 \div 2$

b)  $(12 - 3) \bullet (24 \div 8)$

c)  $30 \div 5 + 2 \bullet 12$

d)  $\frac{(5+3) \times 2}{6 \times 3 - 5 \times 2}$

2. Evaluate each expression.

a)  $2x - 3y$

x = 5 and y = 2

b)  $19 - 2y$

y = 5

c)  $3(x + 2y)$

x = 9 and y = 4

d)  $y - 10x$

x = 2 and y = 30

3. Arrange from smallest to largest.

1.7, 1.6, 1.05, 0.7, 1.57, 1.75, 1.007

4. Replace the blank with a “>”, “<” or “=” to make the statement true.

a)  $7.89 \underline{\quad} 7.98$

b)  $0.008 \underline{\quad} 0.01$

c)  $5.92 \underline{\quad} 0.592$

d)  $\$0.5 \underline{\quad} 50 \text{¢}$

e)  $-31 \underline{\quad} 0$

f)  $-8 \underline{\quad} -9$

5. Name each part of the power term:



6. Evaluate each power.

a)  $2^3$

b)  $1^5$

c)  $5^2$

d)  $6^3$

e)  $10^4$

f)  $2^4 - 3^3$

g)  $9^2 + 5^3$

h)  $2(4)^2$

7. Simplify using the exponent laws.

a)  $x^7 \cdot x^3$

b)  $x^{12}(x^3)$

c)  $\frac{x^8}{x^2}$

d)  $\frac{12x^6}{6x^5}$

e)  $(x^3)^4$

8. Write the fraction indicated using the data provided. In a class of 30 students, 18 have blue eyes and 12 have brown eyes.

What fraction of the class has brown eyes? \_\_\_\_\_

What PERCENT of the class has blue eyes? \_\_\_\_\_

9. Simplify each fraction.

a)  $\frac{48}{100}$

b)  $\frac{12}{42}$

c)  $\frac{24}{28}$

d)  $\frac{40}{25}$

10. Solve each proportion.

a)  $\frac{10}{15} = \frac{n}{3}$

b)  $\frac{5}{8} = \frac{25}{x}$

c)  $\frac{9}{2} = \frac{x}{7}$

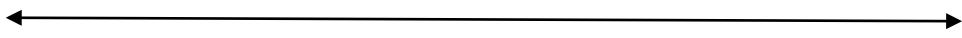
d)  $\frac{x}{8} = \frac{7}{10}$

## PART 2

1. Ron made 9 out of 15 free throws and Jeff made 8 out of 12. Who made the greatest fraction of free throws? What was his shooting percentage?

2. On a numberline, show where each of the fractions is located.

a)  $\frac{1}{2}$



b)  $\frac{4}{5}$



c)  $\frac{7}{3}$



d)  $\frac{10}{4}$



e)  $\frac{3}{7}$



3. Perform the operation indicated.

a)  $\frac{1}{5} + \frac{2}{5} =$

b)  $\frac{1}{3} + \frac{1}{4} =$

c)  $1\frac{1}{2} + 2\frac{7}{10} =$

d)  $\frac{3}{4} + \frac{5}{10} - \frac{1}{2} =$

e)  $\frac{2}{3} \times \frac{1}{5} =$

f)  $\frac{4}{9} \times 1\frac{3}{4} =$

g)  $\frac{2}{5} \div \frac{1}{3} =$

h)  $3\frac{1}{2} \div \frac{3}{8} =$

i)  $\frac{1}{4} \left( \frac{7}{10} - \frac{3}{10} \right) =$

j)  $\frac{1}{5} + \frac{1}{2} \times \frac{3}{5} =$

4. Place the integers on the numberline.

-6, 2, 4, -2, 0, 10, -7



5. Compare the numbers using  $>$   $<$

6  $\boxed{\phantom{0}}$  12

9  $\boxed{\phantom{0}}$  0

-3  $\boxed{\phantom{0}}$  1

-4  $\boxed{\phantom{0}}$  -2

6. Arrange from smallest to largest.

9, -12, 3, -5, 0, -9, 8, 24, -25

7. Perform the indicated operation.

a)  $8 + (-6)$

b)  $-11 + (-5)$

c)  $-14 + 9$

d)  $-3 + 12 + (-5)$

e)  $-8 - 9$

f)  $10 - 14$

g)  $-6 - (-4)$

h)  $-12 - 8 - (-3)$

## Part 3

1. Calculate:

a)  $-6 + 10$

b)  $5 - (-3)$

c)  $(-2)(-3)$

d)  $-1 \times 5 + 10$

e)  $-20(-6 - 4)$

f)  $[4 + 2 - 8 - 12 + 9] \bullet -2$

g)  $[-5 - 3 + 4 - 2] \bullet 0$

2. The temperature at 8 am was  $-4^\circ\text{C}$ , at 2 pm the temperature was  $5^\circ\text{C}$ . What was the difference?

3. Evaluate each expression.

a)  $4c + a$

b)  $x^2$

c)  $2x - x^2$

d)  $\frac{7-2a}{3}$

if  $a = (-3)$

$c = (-5)$

if  $x = -6$

if  $x = -3$

if  $a = -5$

3. Model the following expressions using algebra tiles.

a)  $-2 + 5$

b)  $-x + 2 - 4 + 3x$

c)  $x^2 - 4x + 3 + 2x - 1$

4. Simplify by collecting the like terms.

a)  $10n + 5n$

b)  $2n + 7m - 4n - 9m$

c)  $7y^2 - 12y - y + y^2 - 9y$

d)  $(5x - 6x^2) + (3x + 4x^2)$

e)  $4(3x - 2)$

f)  $5(2x + 4) - 3(x - 9)$

5. Fill in a number that makes a true statement.

a)  $\boxed{\quad} + 3 = 10$

b)  $6 - \boxed{\quad} = 4$

c)  $3(\boxed{\quad}) = 12$

6. Solve each equation below. Show all of your work!

a)  $x - 9 = 12$

b)  $x + 14 = 27$

c)  $x + 3 = -10$

d)  $x - 4 = -8$

e)  $5x = 15$

f)  $-2x = 22$

g)  $3x = 18$

h)  $-2x = 12$

i)  $2x - 4 = 12$

j)  $7x + 2 = 30$

k)  $5x - 8 = -23$

l)  $-3x - 2 = 43$

m)  $4(x + 3) = 20$

n)  $10 = 2(x - 7)$

o)  $5x + 2 = 4x - 10$

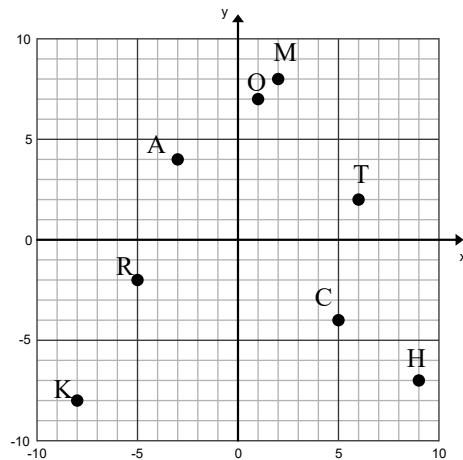
## Part 4

1. Extend the linear pattern

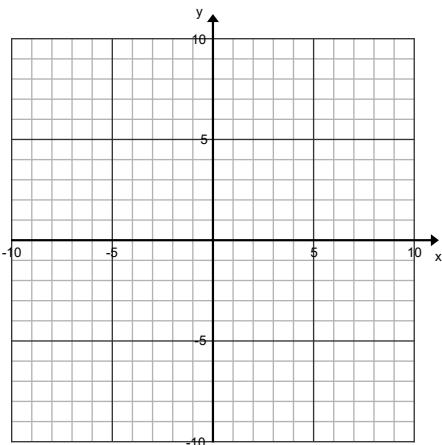
- a) 6, 9, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- b) 22, 17, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- c) -16, -10, -4, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- d) 15, 7, -1, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

2. What are the coordinates?

M  
A  
T  
H  
R  
O  
C  
K



3. Plot the following points on the grid.



A (3, 9)

B (-4, 2)

C (0.5)

D (-3, -6)

4. Fill in the table of values for each equation

$$Y = x + 1$$

x	y
0	
1	
2	
3	

$$y = 2x - 6$$

x	y
4	
3	
2	
1	

$$y = -3x$$

x	y
2	
-2	
1	
-3	

5. Given the scale factor, determine if it is an enlargement or a reduction.

$$SF = 9$$

enlargement or reduction

$$SF = 0.2$$

enlargement or reduction

$$SF = \frac{3}{4}$$

enlargement or reduction

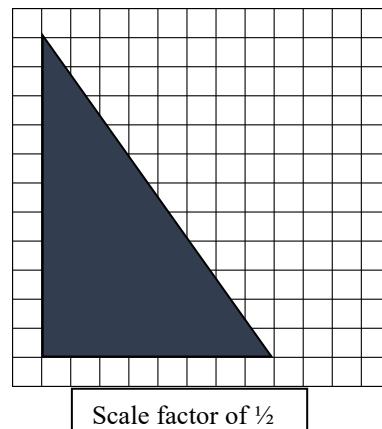
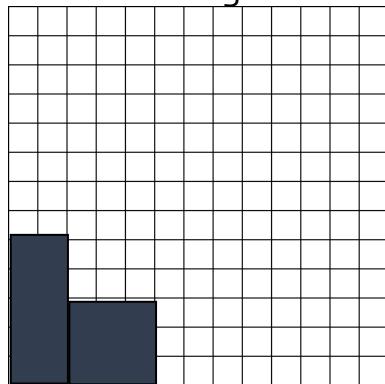
$$SF = 6$$

enlargement or reduction

6. Fill in the scale factor chart

Original length	Scale factor	Image length
12 cm	2	
8 m	3	
4.5 mm	0.5	
	4	28 m
	2	17 cm
	0.5	3 mm

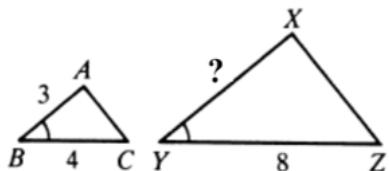
7. Draw the enlargement or reduction



## Part 5

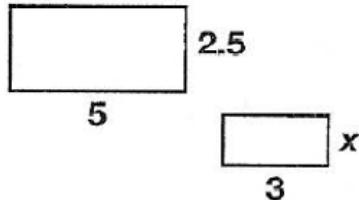
1. Determine the missing side lengths in the similar shapes.

a)



$$\frac{\text{small } \triangle}{\text{big } \triangle} \quad \frac{4}{8} = \frac{3}{?}$$

b)

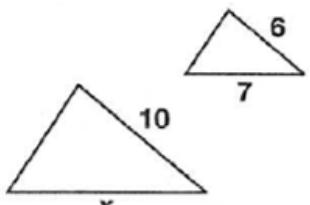


$$\frac{\text{small } \square}{\text{big } \square} \quad \frac{3}{5} = \frac{x}{2.5}$$

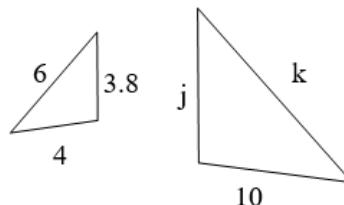
The missing side is \_\_\_\_\_.

$X =$  \_\_\_\_\_

c).

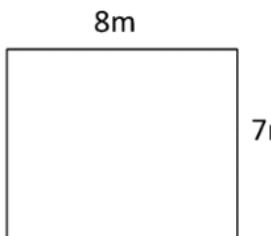


d)

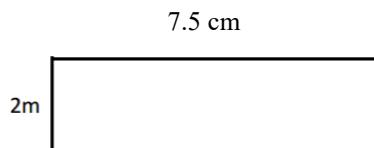


$$5. \ j = \text{_____} \quad k = \text{_____}$$

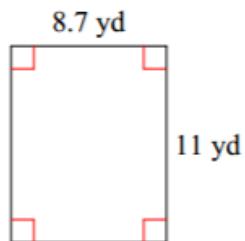
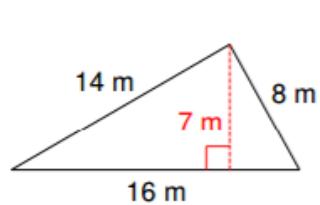
2. Determine the perimeter for each shape



$$\text{Perimeter} = \text{_____ m}$$



3. Determine the area for each shape



4. Calculate the surface area

