Algebra 1 Final Review Fall 2014

Chapter 1

For 1 to 5 write an algebraic expression for each phrase. **NO Calculator**

1. The sum of a number and 12.
2. The product of 2 and a number.
3. The quotient of 36 and a number.
4. Four less than nine times a number.
5. The difference of eight and a number.

Simplify each using order of operations. **NO Calculator**

6. $10 + 20 \div (2 + 3 \cdot 6)$
7. $18 - 3 + 6 - 2 + 1$
8. $24 \div 3 \cdot 4 \div 2$
9. $4 + 2(9 - 6)^2$
10. $14 - 2[12 + (3^2 - 1)]$
11. $|7| - |-3|$
12. $|-7 + 2| + |-1|$

Evaluate for $x = -2$ $y = 4$ $a = 5$ $b = -3$ **NO Calculator**

13. $2a^2 - b$
14. $b^2 + xy$
15. $-x + b$

Simplify by removing the parentheses using the distributive property. **NO Calculator**

16. $4(3m + 2)$
17. $-3(2A - 8)$
18. $-(4k - 3)$
19. $\frac{3}{5}(10c + 35)$

Simplify by combining like terms. You may have to use the distributive property first.

20. $12M + N - 9 + 2N + M - 2 + 8M$
21. $x^2 + 2x^3 - 6x + 3x^2 - 9x^3 + x - 7x^2$
22. $mn^2 - 4mn + 5m^2n - 3mn^2 - 9mn + 4m^2n + 2mn^2$
23. $5(Q + 2) - 2(3Q - 7) + 20$

Write an equation to model each situation. Define your variables.

23. There are 12 eggs in a dozen. Write an equation for the number of eggs in an unknown number of dozens.
24. There are 20 pieces in a box. Write an equation for the number of boxes in an unknown number of pieces.

Chapter 2

For 1 to 22 solve each equation.

1. $-32M = 768$
2. $T + 37.1 = -18.9$
3. $N - 26.8 = -37.2$
4. $\frac{W}{4} = 40$
5. $\frac{8}{7}Y = 24$
6. $3P + 41 = 91$
7. $16 - 4A = -116$
8. $\frac{E}{9} - 7 = 20$
9. $20 - L = 203$
10. $16 + \frac{3}{7}G = 34$
11. $8(3M + 2) = 376$
12. $4W + 2(W - 3) = -42$

13. $8Q + 17 - 6Q - 5 = 19.5$ 14. $3(T+7) + 2(4T-3) = 158$ 15. $7K + 305 = 12K$

16. $10 - 2R = -8R + 148$ 17. $6V = 165 + 9V$ 18. $9M - 4(M+3) = 4M - 23$

19. $\frac{5x}{7} + \frac{9}{14} = \frac{11}{28}$ 20. $\frac{7}{9} + \frac{8}{15}w = \frac{13}{3}$ 21. $7a + 2(a-9) = a + 7 + 8a$

22. $4 - 3(2c-5) + 4c = 5c + 11 - 7c + 8$

23. Solve this equation for K. $\frac{K}{R} = T$ 24 Solve this equation for M. $M - P = Y$

25. Solve this equation for V. $VEJ = Q$ 26. Solve this equation for S $SR - M = U$

27. Solve this equation for C $\frac{H+C}{W} - R = A$

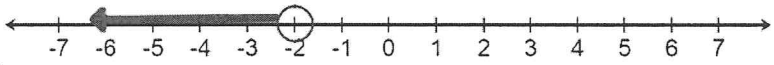
28. Solve this equation for R $M(R-K) + B = G$

Chapter 3

For 1 to 4, graph each inequality on a number line.

1. $M > 7$ 2. $Q \leq -2$ 3. $-3 \leq K$ 4. $R < 5$ or $R > 8$ 5. $x \geq -3$ and $x \leq 1$

For 6-13, write an inequality for each graph or statement.

6. 

7. 

8. 

9. I can carry up to 8 pieces of wood.

10. He needs at least 50 votes to win the election.

11. She can get no more than 3 wrong to get an A.

12. The maximum amount you can charge on your credit card is $5000.

13. The minimum score to qualify for the scholarship is 82.

For 14 to 17, solve each inequality.

14 $4K + 32 > 8$ 15. $56 > -4R$

16. $9 - 5(M+3) + 2M \geq 27$ 17. $-20 < 2x + 4 < 14$

Chapter 6

You can write the equation of lines in any form if none is specified.

Equations for lines:

Slope-Intercept Form: $y = mx + b$	Standard Form: $Ax + By = C$	Point-Slope Form: $y - y_1 = m(x - x_1)$

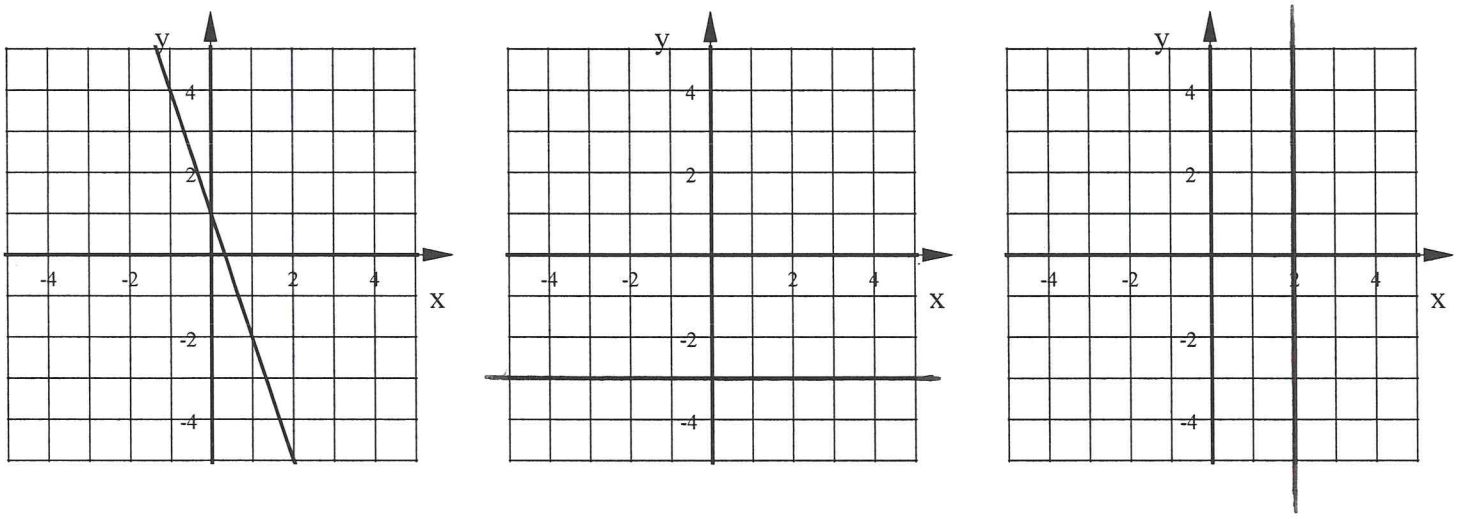
1. Write the equation of the line that passes through the pair of points in both Slope-Intercept Form and Point-Slope Form.
$(4,-18)$ & $(-7,37)$

2. Write the equation of the line described.
a) Passes through $(-3,8)\&(-3,1)$ b) Passes through $(4,5)\&(-2,5)$

c) The slope is zero and it passes through $(-2,8)$

d) The slope is undefined and it passes through $(9,4)$

3. Write the equation of each the line



4. Find the x and y intercepts for this line: $3x - 5y = 30$

5. Graph each equation.
(a). $y = 3x - 4$ (b). $y = -\frac{1}{2}x$ (c). $y = -1$
(d). $9x - 12y = 36$ (e). $x = -4$ (f). $y - 2 = 3(x - 1)$

6. Use this line: $y = 6x - 7$
a) Write the equation of the line that is parallel to this line and passes through the point $(5,1)$

b) Write the equation of the line that is perpendicular to this line and passes through the point $(12,10)$

7. State whether each pair of lines is parallel, perpendicular, or neither.

(a) $y = \frac{1}{6}x - 1$
$y = \frac{1}{6}x + 1$

(b) $y = 2x + 5$
$y = -2x + 11$

(c) $y = -\frac{4}{7}x + 3$
$y = \frac{7}{4}x + 3$

(d) $y = -2x + 1$
$10x + 5y = 30$

(e) $y = 5$
$x = 5$

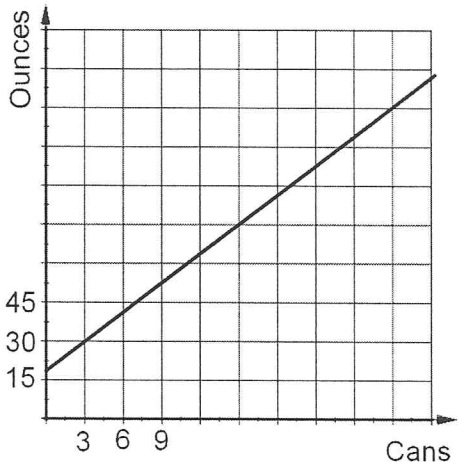
(f) $y = 4x - 3$
$8x - 2y = 6$

8. Find the rate of change for each. Give answer as a decimal rounded to the nearest hundredth as necessary.

a) Use the table below

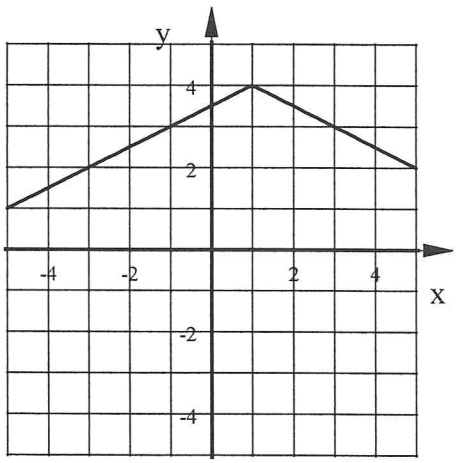
Boxes	Total $
4	64.50
7	101.25
10	138
15	199.25
19	248.25

b) Use the graph below.

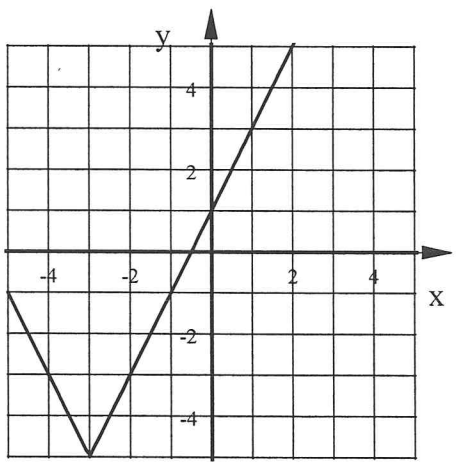


9. Write the equation of each Absolute Value function.

a)



b)



ALG 1 FINAL EXAM REVIEWS FALL 2014

Chapter 5

1. Is each table an example of direct variation? If yes, write a direct variation equation.

(a)

X	Y
6	10
8	15
12	20
15	25

Yes or No?_____

If yes, write the direct variation equation:_____

(b)

X	Y
8	2
20	5
24	6
36	9

Yes or No?_____

If yes, write the direct variation equation:_____

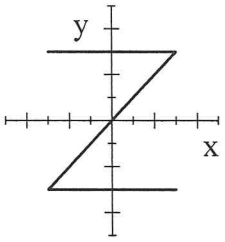
2. Is each of the below an example of a function?

(a)

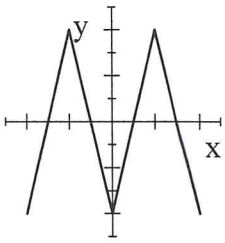
X	Y
3	1
7	9
10	14
13	9

b) $(3,4),(6,-8),(-1,9),(3,7)$

c)



d)



3. State the domain and range of this set of points. $(5,6),(-3,6),(4,8),(1,3)$

4. Use these functions $f(w) = w^2 - 5$ $g(c) = 4c - 5$.

a) Find $f(-3)$ b) Find c if $g(c) = 41$

c) State the range of $f(w)$ for this Domain: $\{-1,1,3\}$

5. The number of light bulbs varies directly with the amount of light required (Lumens). 75 bulbs were needed to get 600 Lumens.

a) State the variation constant including units.

b) Find the number of Lumens produced by 120 lights.

6. Graph each. Make sure your graph shows the whole shape

a) $y = (x+2)^2 - 3$ b) $y = -2|x+3| + 5$

Chapter 7

1. Solve this system of equations by graphing. $y = -\frac{1}{2}x + 4$ $3x - 6y = 12$

2. Witout graphing tell if each system of equations has ONE, NONE, or MANY solutions.
solutions without graphing.

a) $y = 4x - 5$
$y = -\frac{1}{4}x + 7$

b) $y = 2x + 8$
$6x - 3y = 12$

c) $y = \frac{2}{3}x - 4$
$6x - 9y = 36$

3. Solve each system of equations by SUBSTITUTION. Give your answer as the coordinates of a point.

a) $y = 4x - 9$
$y = 2x + 15$

b) $y = 3x - 4$
$6x + 5y = 1$

4. Solve each system of equations using ELIMINATION. Give your answer as the coordinates of a point.

a. $4x + 3y = -6$
$4x - 7y = -26$

b. $5a - 16b = 87$
$11a + 4b = -83$

c $10Q + 3R = 24$
$4Q + 13R = 104$

d. $11x - 7y = 106$
$-12x + 7y = -115$

5. Today I bought 4 pounds of apples and 2 pounds of bananas for $7.74. Last week I bought 3 pounds of apples and 1 pound of bananas for $5.56. The price for apples and bananas were the same each time. Write and solve a system of equations to find the cost for a pound of apples and a pound of bananas.

6. Graph each system of linear inequalitites. Shade the solution region with a colored pencil.

a)
$y > -2x + 4$
$y \leq \frac{1}{3}x$

b)
$4x - 6y \geq 12$
$8x + 4y < 16$