Algebra 1 Final Review

Chapter 1

For 1 to 4 write an algebraic expression for each phrase.

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.

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

5. $10 + 20 \div (2 + 3 \cdot 6)$

6. $18 - 3 + 6 - 2 + 1$

7. $24 \div 3 \cdot 4 \div 2$

8. $4 + 2(9 - 6)^2$

9. $14 - 2[12 + (3^2 - 1)]$

10. $|7| - |-3|$

11. $|-7 + 2| + |-1|$

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

12. $2a^2 - b$

13. $b^2 + xy$

14. $-x + b$

Simplify by removing the parentheses using the distributive property.

15. $4(3m + 2)$

16. $-10(2A - 8)$

17. $-(4k - 3)$

18. $\frac{3}{5}(10c + 35)$

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

19. $12M + N - 9 + 2N + M - 2 + 8M$

20. $x^2 + 2x^3 - 6x + 14x^2 - 9x^3 + x - 15x^2$

21. $mn^2 - 4mn + 5m^2n - 9mn + 4m^2n + 12mn^2$

22. $5(Q + 2) - 2(3Q - 7) + 20$

Chapter 2

For 1 to 21 find the EXACT solution to each equation.

1. $-32M = 768$
2. $T + 37.1 = 78.9$
3. $N - 26.8 = -37.2$
4. $\frac{W}{4} = 40$

5. $\frac{8}{7}Y = 24$
6. $3P + 41 = 95$
7. $16 - 4A = -116$
8. $\frac{E}{9} - 6 = 20$

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. $\frac{5}{3}x + \frac{7}{6} = \frac{11}{12}$
20. $7a + 2(a - 9) = a + 7 + 8a$

21. $4 - 3(2c - 5) + 4c = 5c + 11 - 7c + 8$

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

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

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

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

Algebra 1 Final Review ANSWERS

Chapter 1

1. $Q+12$ 2. $2M$ 3. $\frac{36}{A}$ 4. $9c-4$

5. 11 6. 20 7. 16 8. 22 9. −26 10. 4 11. 6

12. 53 13. 1 14. −1 15. $12m+8$ 16. $-20A+80$

17. $-4k+3$ 18. $6c+21$ 19. $21M+3N-11$ 20. $-7x^3-5x$

21. $9m^2n+13mn^2-13mn$ 22. $-Q+44$

Chapter 2

1. −24 2. 41.8 3. −10.4 4. 160 5. 21

6. 18 7. 33 8. 234 9. −183 10. 42 11. 15 12. −6

13. 3.75 14. 13 15. 61 16. 23 17. −55 18. −11

19. $-\frac{3}{20}$ 20. No Solution 21. All Real Numbers

22. $K=TR$ 23 $M=Y+P$ 24. $V=\frac{Q}{EJ}$ 25. $S=\frac{U+M}{R}$

26. $C=W(A+R)-H$ 27. $R=\frac{G-B}{M}+K$ *or* $R=\frac{G-B+KM}{M}$

Algebra 1 Final Review ANSWERS

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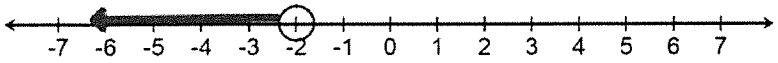
ALG 1 FINAL EXAM REVIEWS FALL 2015

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 6-11, 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 number of players allowed on the team is 25.
13. The minimum score to qualify for a loan is 720.
14. The best temperature to paint outside is when it's between $50°F$ and $82°F$.

For 15 to 22, find the EXACT solution to each inequality.

15 $4K + 32 > -8$ 16. $8r - 56 > 4r$ 17. $9 - 5(M + 3) + 2M \geq 27$

18. $-20 < 2x + 4 < 14$ 19. $4 - 2(3c + 7) + 8c \leq 5c + 12 - 3c$

20. $3b - 3 < 24$ or $b + 14 - 2b < 4$ 21. $3 + \frac{W}{5} < -18$ 22. $\frac{7}{3} - \frac{5}{6}w \geq \frac{1}{9}$

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:_____

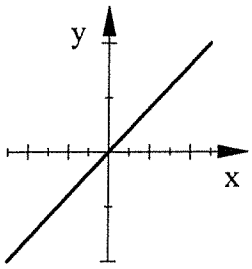
(b)

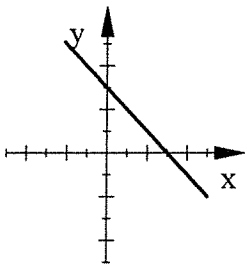
X	Y
8	2
20	5
24	6
36	9

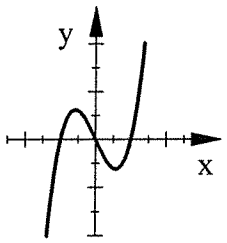
Yes or No?_____
If yes, write the
direct variation equation:_____

2. Is each graph an example of direct variation?

(a) (b) (c)





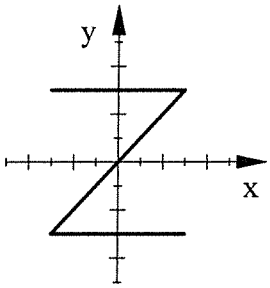


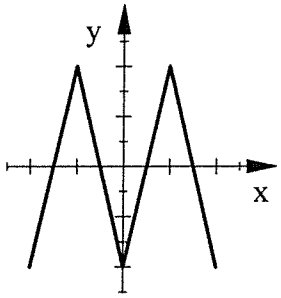
4. Is each of the below an example of a function?

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

b) c) d)

X	Y
3	1
7	9
10	14
13	9

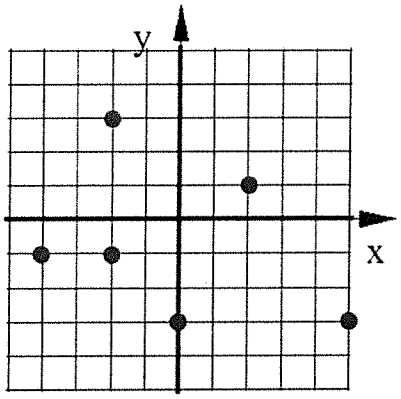




5. State the domain and range of each.

a) $(5,6),(-3,6),(4,8),(1,3)$

b) Use the graph below.



6. Use these functions: $f(w) = w^2 - 5w$ *and* $g(x) = 4x - 9$

a) Find $f(11)$.

b) Find the Range of $f(w)$ for this Domain: $\{-2,0,2,3\}$

c) Find x when $g(x) = 50$

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

a) Give the variation constant including units.

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

8. Graph each of the functions using at least five points. Make sure your graph shows the whole shape

a) $y = (x+2)^2 - 3$ b) $y = -2|x-3|+4$ c) $y = 2x^2 - 4x - 3$

9. Write a function rule for each table.

a.

x	y
−4	3
−3	4
0	7
1	8

b.

x	y
−6	−24
−3	−12
0	0
2	8

10. The amount of money in the cash register during the day is a function of the number of gallons of gas sold. The station opened up with $500 in the cash register. Gas is sold for $1.75 a gallon. Model this situation with a function rule. Define your variables.

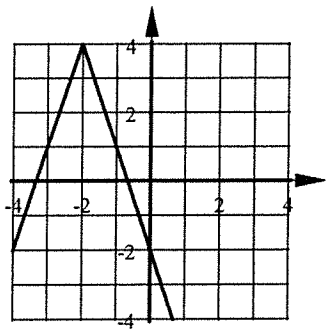
11. The table below shows a direct variation relationship.

X	Y
−6	25.20
−1.8	7.56
14	Y
X	−96.6

a) Find the value of X b) Find the value of Y

X = _____ Y = _____

12 Write the equation of the graph shown below.



Chapter 6

Unless directed otherwise you can write the equation of a line in any form.

1. Write the equation of the line passing through this pair of points in both Slope-Intercept Form and Point-Slope Form: $(-3,-19)$ and $(2,1)$

2. Write the equation of the line that passes through each pair of points.

a) $(5,-9)\&(5,2)$ b) $(-2,-3.5)\&(4,-3.5)$

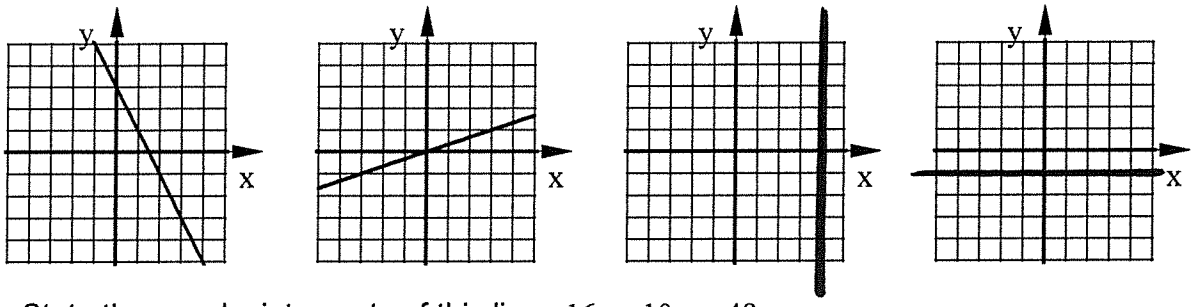
3. Use this line for both parts: $y = 3x - 4$

a) Write the equation of the line that is perpendicular to this line and passes through the point $(6,-1)$.

b) Write the equation of the line that is parallel to this line and passes through the point $(-5,8)$

4. Write the equation of each line.

a) b) c) d)



5. State the x and y intercepts of this line: $16x - 10y = 48$

6. Graph each line.

a) $6x - 4y = 12$ b) $y = -\frac{2}{3}x - 1$ c) $x = 2$ d) $y = 2x$ e) $y = 3$

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

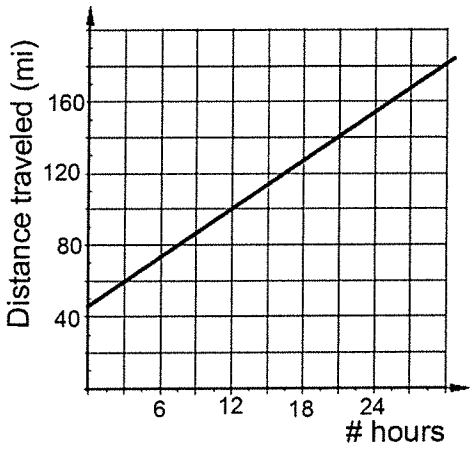
a)	b)	c)	d)
$y = 4x - 5$	$y = 2x + 6$	$y = 9$	$y = 3x + 7$
$8x - 2y = 10$	$4x + 8y = 24$	$x = 9$	$6x - 2y = 8$

8. Find the rate of change for each. Give your answer rounded to the nearest hundredth where necessary and give units with your answer.

a)

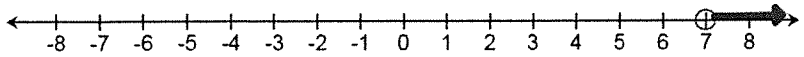
# days	# tons of dirt
8	500
13	711.25
18	922.5
21	1049.25
30	1429.5

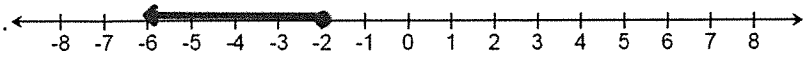
b)

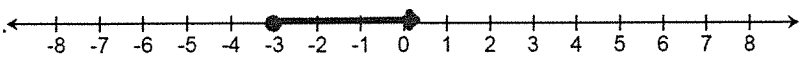


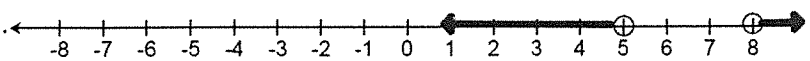
Algebra 1 Final Review ANSWERS Fall 2015

Chapter 3

1. 

2. 

3. 

4. 

5. 

6. $W < -2$ 7. $-5 \le C \le 0$ 8. $A < 1$ OR $A > 5$ 9. $w \le 8$ 10. $v \ge 50$

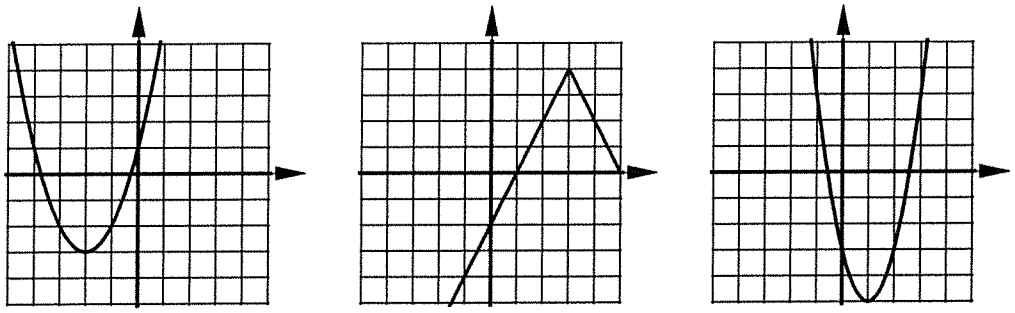
11. $w \le 3$ 12. $P \le 25$ 13. $L \ge 720$ 14. $50 < T < 82$

15 $K > -10$ 16. $r > 14$ 17. ≤ -11 18. $-12 < x < 5$

19. All Real Numbers 20. $b < 9$ or $b > 10$ 21. $W < -105$ 22. $w \le \frac{8}{3}$

Chapter 5

1. a) Not Direct Variation b) Yes it is Direct Variation. $y = 0.25x$
2. a) Yes b) No c) No
4. a) No b) Yes c) No d) Yes
5. a) Domain: $\{-3, 1, 4, 5\}$ Range: $\{3, 6, 8\}$
   b) Domain: $\{-4, -2, 0, 2, 5\}$ Range: $\{-3, -1, 1, 3\}$
6. a) 66 b) Range: $\{-6, 0, 14\}$ b) $x = 14.75$
7. a) $k = 0.125$ bulbs/Lumen y = #bulbs x = #Lumens
   b) 960 Lumens
8. a) b) c)

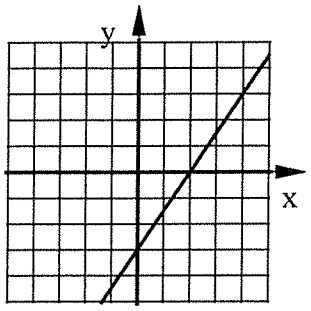


9. a) $y = x + 7$ b) $y = 4x$
10. $M = 500 + 1.75G$ M =total amount of money in cash register G =# gallons sold
11. $X = 23$ $Y = -58.8$ 12. $y = -3|x + 2| + 4$

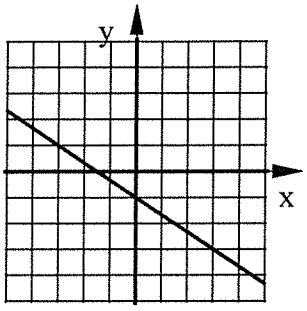
Chapter 6

1. Point-Slope: $y + 19 = 4(x + 3)$ *or* $y - 1 = 4(x - 2)$
   Slope-Intercept Form:
2. a) $x = 5$ b) $y = -3.5$
3. a) $y + 1 = -\frac{1}{3}(x - 6)$ *or* $y = -\frac{1}{3}x + 1$
   b) $y - 8 = 3(x + 5)$ *or* $y = 3x + 23$
4. a) $y = -2x + 3$ b) $y = \frac{1}{3}x$ c) $x = 4$ d) $y = -1$
5. $x - nt = 3$ $y - int = -4.8$
6.

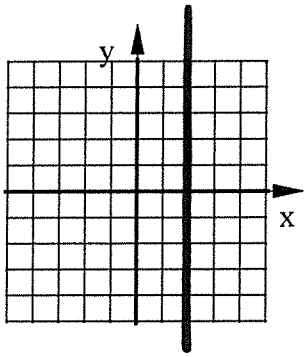
a)



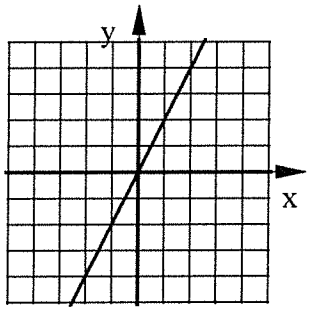
b)



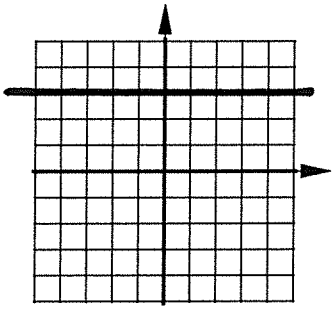
c)



d)



e)



7. a) Neither b) Perpendicular c) Perpendicular d) Parallel
8. a) 42.25 tons/day b) 4.44 miles/hour