Alg 2A Final Exam Review Fall 2016

Chapter 1 1. Solve each compound inequality. Give answers as single statements, if possible.

a) $W < 8$ *AND* $W > 9$ b) $A \geq -9$ *OR* $A \leq 12$

c) $E > 6$ *OR* $E > 10$ d) $B > 0$ *AND* $B < 2$

e) $M \leq 6$ *AND* $M \leq 20$

2. State all the sets of numbers to which each belongs.

a) $\frac{32}{7}$ b) $\sqrt{16}$ c) 3.23 d) $\frac{-24}{6}$ d) 0 e) $\sqrt{11}$

3. Evaluate each expression for $c = -4$ $d = 6$ $e = 3$ $g = -8$

a. $c^2 - |e - c|$ b. $-g - 2e^2$ c. $-|c| - d|g - e|$

4. Solve each.

a. $-17 \leq 2x + 7 < 22$ b. $5(R - 5) + 42 \geq 3R + 20 + 2R + 6$

c. $-4x + 13 + 7x + 5 = x + 2(x + 5) + 8$ d. $3 - 7(x + 3) - 4 + 5x < 31$

e. $4 - 2x \geq 8$ *or* $7x - 11 > 48$

5. Solve each equation for W. State the restrictions on the variables, if any.

a) $A(W + G) - K = M$ b) $\frac{EW - A}{T} + M = C$ c) $MW - RC = HW + AN$

d) $\frac{H - C}{W} + R = X$

6. Solve each.

a) $5|2x + 1| - 8 = 42$ b) $|5x - 2| + 7 < 23$ c) $|x + 7.9| - 13.3 \geq 42.7$ d) $|x - 7| = 3x + 2$

7. Simplify each expression.

a. $-3a(4a + 3) - 8a - 10a^2 - 4(a^2 - 7a + 2) - 15$ b. $12c^2d - 5d^2c - 13c^2d^2 + 10cd^2 - c^2d^2 + 9c^2d - 8cd$

8. The perimeter of a rectangle is 60 cm. The length is three cm less than twice the width. Write and solve equations to find the dimensions of the rectangle.

9. The ratios of the three sides of a triangle are $2 : 4 : 5$. The perimeter of the triangle is 105.6 in. Write and solve an equation to find the lengths of the three sides.

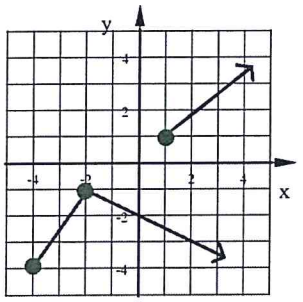
Chapter 2 1. Does each relation below represent a function?

a. $(4,3), (-5,7), (-2,1), (-5,0)$

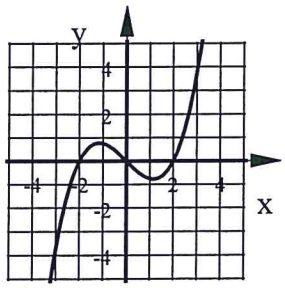
b.

X	2	−7	13	41	−1
Y	6	−3	6	4	8

c.



d.



2. State the domain and range of each part of problem #1.

3. Is each table an example of Direct Variation, Inverse Variation, or neither. If the table represents Inverse or Direct Variaton write a variation equation and find the value of x when $y = 135$.

a)

x	y
2.5	25.6
8	8
40	1.6
50	1.28

b)

x	y
4	20
8	30
12	40
16	50

c)

x	y
−6	−45
8	60
12	90
18	135

4. The number of tires made varies directly with the number of workers at the factory. When there is 32 workers on the job 776 tires are made.

a) State the variation constant. Inlcude units with your answer.

b) Find the number of workers needed to make 1200 tires.

5. Use these functions: $f(x) = 10x^2 + 1$ $g(x) = 2x - 1$ $h(x) = \frac{3x-1}{x+7}$

a) Find $h(-5)$ b) Find x if $g(x) = 37$ c) Find $3f(-2) - 4g(5)$

6. Write the equation of the line that passes through the points $(12, 19)$ & $(-4, -21)$. Give your answer in both Point-Slope and Slope-Intercept Forms

7. Write the equation of each line:

a) Passes through $(6, 4)$ & $(-5, 4)$ b) Slope is undefined and it passes through the point $(7, -8)$

c) Pases through $(-1, 8)$ & $(-1, -3)$ d) $Slope = 0$ and it passes through the point $(-5, -11)$

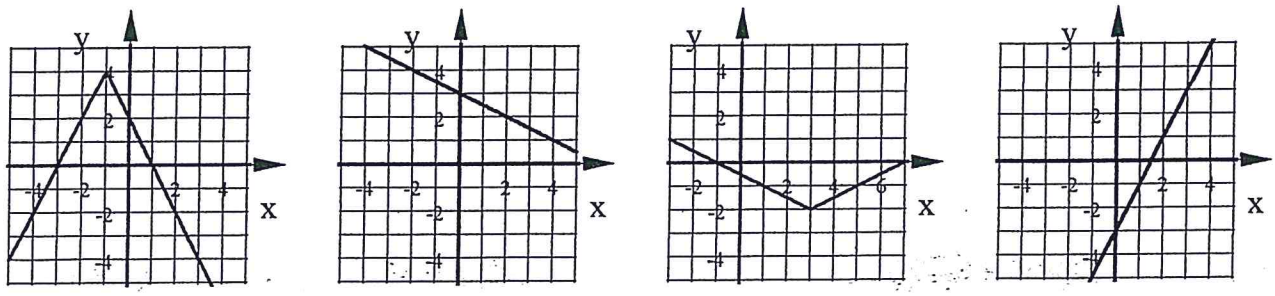
8. Given the line $y = 3x - 8$

a) Write the equation of the line that is parallel to this line and passes through the point $(7, -3)$

b) Write the equation of the line that is perpendicular to this line and passes through the point $(-12, 1)$

9. Write the equation of each graph.

a) b) c) d)



Chapters 3 and Sec 4

1. Solve each system of equations. State each solution as an ordered pair, or triple. Use each of the following methods at least once each: Graphing, Matrices, Elimination, and Substitution. When using matrices write out the two matrices used to solve the system.
Write No Solution or Many Solutions when necessary.

a.
$y = 5x - 13$
$2.\ 5x - 7y = -39$

b.
$2x + 4y = 12$
$3x + 6y = -24$

c.
$7A + 6B = -36$
$3A - 4B = -22$

d.
$2P + 6Q = 8$
$5P + 15Q = 20$

e.
$4x - 5y + 2z = 26$
$-x + 3y - 6z = -20$
$7x + y = 11$

f.
$y = 2x + 2$
$5x + 10y = -30$

g.
$2x - y + 3z = -5$
$6x + 2y - 7z = 42$
$4x - 9y + 4z = -41$

2. Without actually solving the system of equations state the number of solutions: One, None, or Many

a. # sol:_____
$y = 4x - 9$
$2x + 8y = 24$

b. # sol:_____
$y = -\frac{3}{2}x + 5$
$6x + 4y = 20$

c. # sol:_____
$y = 10$
$10x + 2y = 14$

d. # sol:_____
$y = 2x + 1$
$y + 3 = 2(x - 2)$

3. Graph each system of inequalities. Shade the solution region a different color to that it is obvious what your answer is.

a. $y < -\frac{1}{2}x - 1$
$y \geq 2|x + 3| - 1$

b. $y \geq -3$
$x < 2$
$6x - 3y \geq -6$

For 4 and 5, Write and solve a system of equations. You may use any method to solve the system you've written.

4. There are 128 students in a large lecture hall. The number of females is seven less than twice the number of males. Write and solve a system of equations to find the number or females and males in the lecture hall. State the method used to solve the system of equations.

5. At 7-11 I bought 2 Gulps and 5 Big Gulps and spent $8.40. The next day I bought 3 Gulps and 8 Big Gulps and spent $13.23. The prices for were the same both days. Write and solve a system of equations to find the cost of a Gulp and the cost of a Big Gulp. State the method used to solve the system of equations.

6. Solve each matrix equation.

a) $4\begin{bmatrix} 6 & -2 \\ 1 & 4 \end{bmatrix} - 2X = \begin{bmatrix} 30 & -20 \\ 0 & 2 \end{bmatrix}$

b) $\begin{bmatrix} 3 & 0 \\ -5 & 8 \end{bmatrix} + 3\begin{bmatrix} 2 & -1 \\ 6 & 5 \end{bmatrix} X = \begin{bmatrix} 57 & 3 \\ 205 & 89 \end{bmatrix}$

c) $\begin{bmatrix} -4 & 1 & 7 \\ 2 & 3 & 9 \\ -1 & 0 & -2 \end{bmatrix} X = \begin{bmatrix} 31 \\ 103 \\ -35 \end{bmatrix}$

Algebra 2 Final Exam Review ANSWERS Fall 2016

Chapter 1

1. a) No Sol b) All Real #'s c) $E > 6$ d) $0 < B < 2$ e) $m \leq 6$

2. a) Rational b) Rational, Integer, Whole, Natural c) Rational d) Rational, Integer
d) Rational, Integer, Whole e) Irrational 3. a) 9 b) -10 c) -70

4. a) $-12 \leq x < \frac{15}{2}$ b) No solution. c) All Real Numbers d. $x > -\frac{53}{2}$ e. $x \leq -2$ or $x > -\frac{53}{2}$

5. a) $W = \frac{M+K}{A} - G$ or $\frac{M+K-AG}{A}$ $A \neq 0$

b) $W = \frac{T(C-M)+A}{E}$ $T \neq 0$ and $E \neq 0$

c) $W = \frac{AN+RC}{M-H}$ $M-H \neq 0$ OR $W = \frac{-RC-AN}{H-M}$ $H-M \neq 0$

d) $W = \frac{H-C}{X-R}$ $X-R \neq 0$ and $W \neq 0$

6. a) $x = -5.5, 4-5$ b) $-2.8 < x < 3.6$

c) $x \leq -63.9$ or $x \geq 48.1$ d) $x = \frac{5}{4}$ other answer is extraneous

7. a. $-26a^2 + 11a - 23$ b. $21c^2d - 14c^2d^2 + 5cd^2 - 8cd$

8. EQ's: $2L + 2W = 60; L = 2W - 3$ Dimensions are: 19x11

9. EQ: $2x + 4x + 5x = 105.6$ Lengths of sides are: 19.2 in, 38.4 in, and 48 in.

Chapter 2

1. a) No b) Yes c) No d) Yes

2. a) D: $\{-5, -2, 4\}$ R: $\{3, 1, 3, 7\}$ b) D: $\{-7, -1, 2, 13, 41\}$ R: $\{-3, 4, 6, 8\}$
c) D: $x \geq -4$ R: $y \leq -1, y \geq 1$ d) D and R: All Real Numbers.

3. a) No b) No c) Yes. $y = 7.5x$ $x = 18$ when $y = 135$

4. a) $k = 24.25$ tires/worker b) #workers= $49.49 \rightarrow 50$

5. a) -8 b) $x = 19$ c) 87

6. Point-Slope: $y - 19 = \frac{5}{2}(x - 12)$ or $y + 21 = \frac{5}{2}(x + 4)$ Slope-Int: $y = \frac{5}{2}x - 11$

7. a) $y = 4$ b) $x = 7$ c) $x = -1$ d) $y = -11$

8. a) $y + 3 = 3(x - 7)$ or $y = 3x - 24$ b) $y - 1 = -\frac{1}{3}(x + 12)$ or $y = -\frac{1}{3}x - 3$

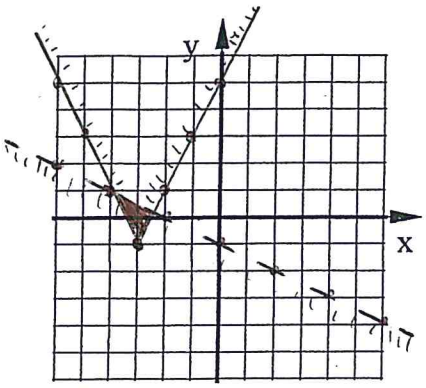
9. a) $y = -2|x + 1| + 4$ b) $y = -\frac{1}{2}x + 3$ c) $y = \frac{1}{2}|x - 3| - 2$ d) $y = 2x - 3$

Chapters 3 and 4

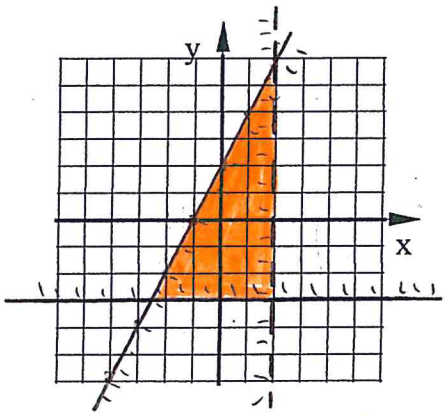
1. a. $(4,7)$ b. No Solution c. $(-6,1)$ d. Many Solutions e. $(2,-3,1.5)$ f. $(-2,-2)$ g. $(3,5,-2)$

2. a. 1 Sol b. Many Sol c. 1 Sol d. No Sol

3. a)



b)



ONLY SOLUTION Region is Shaded

4. EQ's: $F+M=128$ & $F=2M-7$ 83 females and 45 males

5. EQ's: $2G+5BG=8.40$ & $3G+8BG=13.23$
Gulp= $\$1.05$ *each* Big Gulp= 1.26 *each*

6. a) $\begin{bmatrix} -3 & 6 \\ 2 & 7 \end{bmatrix}$ b) $\begin{bmatrix} 10 & 2 \\ 2 & 3 \end{bmatrix}$ c) $\begin{bmatrix} 11 \\ -9 \\ 12 \end{bmatrix}$