

From Test 1

1. State the solution to each compound inequality. Give answers as a single statement, 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 $M \leq 20$

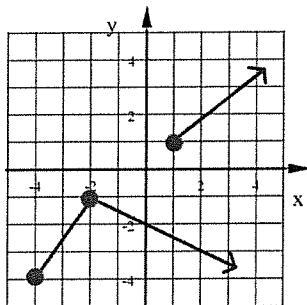
2. Solve each equation for W . State the restrictions on the variables, if any.

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

3. Use the following functions: $f(x) = x^2 - 3x$ $g(x) = \frac{5x}{x+1}$ $h(x) = x + 4$

- a) Find $f(h(x))$. Simplify. b) Find $g(h(x))$. Simplify. c) Find $f(h(2))$

4. Find the Domain and Range of the graph shown below.



- For 5 to 9 solve each. 5. $4x + 6(x - 9) + 12 < 7 + 5(2x - 9) + 3$ 6. $|2x - 1| - 5 = 44$
 7. $|x + 7.6| + 11 > 40$ 8. $|2x + 3| - 4.4 \leq 11$ 9. $-19 \leq 2x + 7 \leq 32$

Chapter 3 and Sec 4-7

For 1 to 5 solve each system of equations. State each solution as an ordered pair or triple. Use each of the following methods at least once each: Matrices, Elimination, and Substitution. When using matrices write down both matrices, A & B. Write No Solution or Many Solutions when necessary.

- | | | | | |
|-----------------|-----------------|-----------------|-----------------|----------------------|
| 1. | 2. | 3. | 4. | 5. |
| $y = 2x - 3$ | $2x + 4y = 12$ | $7A + 6B = -36$ | $2P + 6Q = 8$ | $4x - 5y + 2z = 26$ |
| $4x - 5y = -15$ | $3x + 6y = -24$ | $3A - 4B = -22$ | $5P + 15Q = 20$ | $-x + 3y - 6z = -20$ |
| | | | | $7x + y = 11$ |

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

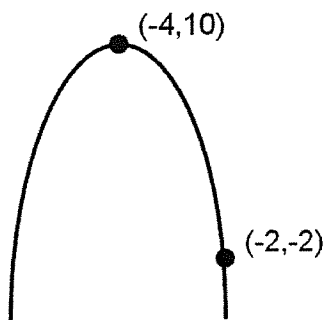
- | | | | |
|-----------------|----------------------------|-----------------|--------------------|
| a. $y = 4x - 9$ | b. $y = -\frac{3}{2}x + 5$ | c. $y = 10$ | d. $y = 2x + 1$ |
| $2x + 8y = 24$ | $6x + 4y = 20$ | $10x + 2y = 14$ | $y + 3 = 2(x - 2)$ |

7. 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 of females and males in the lecture hall. State the method used to solve the system of equations.

8. 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.

Chapter 5

1. Write the equation of this parabola in Vertex Form: $y = a(x - h)^2 + k$



Problems 2 and 3: For each quadratic answer the following:

- a) State the equation for the line of symmetry
- b) State the coordinates of the vertex
- c) State the y-intercept
- d) Tell if the parabola has a maximum or a minimum.

2. $y = -2x^2 - 16x + 13$

3. $y = 3(x - 1)^2 + 6$

4. Find ALL EXACT Complex solutions, both real and imaginary, using factoring:

a) $6x^2 - 15x = 0$

b) $2x^2 + 6x - 20 = 0$

c) $2x^2 + x - 10 = 0$

d) $2x^3 + 7x^2 - 18x - 63 = 0$

5. Find ALL EXACT Complex solutions, both real and imaginary, using square roots:

a) $5 + 3x^2 + 57 = 8$

b) $(x + 3)^2 + 24 = 8$

6. Find all Complex solutions, both real and imaginary, using the quadratic formula. Give all real solutions rounded to the nearest hundredth and simplify all imaginary solutions.

a) $4x^2 + 20x - 1 = 0$

b) $x^2 - 4x + 29 = 0$

On the final exam you will be given a group of quadratic equations to solve using any method you wish but you'll be required to use each method a given number of times.

7. An object is shot into the air from the top of a 30 foot building. The following equation models the height of the object as a function of time. $h(t) = -16t^2 + 200t + 30$

- a) Find the time to reach it's maximum height.
- b) Find the maximum height.
- c) Find the time it takes for the object to return to the ground.
- d) Find the time it takes for the object to reach a height of 100 feet.

8. Find each product: a) $(2 + 4i)(5 - 3i)$ b) $(6 + 7i)(6 - 7i)$

Chapter 6

1. Find all Complex solutions, real and imaginary, using factoring.

a) $2x^5 - 10x^3 - 72x = 0$

b) $3x^3 - 2x^2 + 18x - 12 = 0$

c) $5x^5 - 80x = 0$

2. State the Degree(actual NUMBER) and Leading Coefficient(actual NUMBER) of each polynomial.

a) $5x^3 - 3x^2 + x^5 - 9x + 12$

b) $-10x^2(5x + 6)^2(2x - 1)^3(x + 3)$

3. State the end behavior of each polynomial.

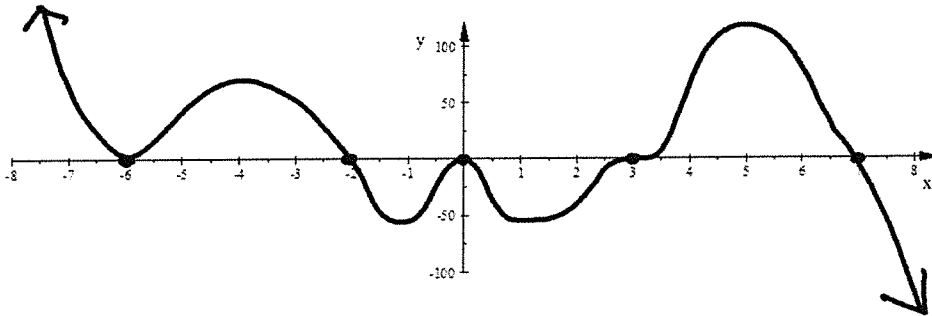
a) $y = 5x^4 + 6x^3 - 7x + 1$

b) $y = -x(x + 6)^2(x - 7)^2(x + 4)$

c) $y = -2x^5 + 8x^4 - 9x^2 + 10x$

d) $y = x^3(x + 3)^2(x + 7)(x - 1)$

4. Write the equation of the polynomial shown in the graph.



5. Find each quotient. You can leave remainders any way you wish.

a) $\frac{3x^4 - 8x^3 + 7x^2 + 4x - 9}{x - 2}$

b) $\frac{8x^3 + 22x^2 - 25x + 3}{4x - 3}$

6. Use the fact 3 and -4 are zeros to factor this polynomial completely. $y = 6x^4 + 5x^3 - 88x^2 - 3x + 180$

7. Use this polynomial: $y = x^4 + 7x^3 + 14x^2 + 28x + 40$ Graph to find find real solutions then find the imaginary solutions. State ALL solutions.

Hon Alg 2 Final Exam Review ANSWERS Fall 2016

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

2. 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 $W \neq 0$

3. a) $x^2 + 5x + 4$ b) $\frac{5x+20}{x+5}$ c) 18

4. Domain: $x \geq -4$ Range: $y \leq -1, y \geq 1$

5. All Real Numbers 6. $x = -24, 25$ 7. $x < -36.6$ or $x > 21.4$

8. $-9.2 \leq x \leq 6.2$ 9. $-3 \leq x \leq 12.5$

Chapter 3 and Sec 4-7

1. (5, 7) 2. No Solution 3. (-6, 1) 4. Many Solutions 5. (2, -3, 1.5)
6. a. 1 Sol b. Many Sol c. 1 Sol d. No Sol
7. EQ's: $F + M = 128$ & $F = 2M - 7$ 83 females and 45 males
8. EQ's: $2G + 5BG = 8.40$ & $3G + 8BG = 13.23$
Gulp= \$1.05 *each* Big Gulp= 1.26 *each*

Chapter 5

1. $y = -3(x + 4)^2 + 10$
2. a) LOS: $x = -4$ b) Vertex (-4, 45) c) $y - int = 13$ d) Max
3. a) LOS: $x = 1$ b) Vertex (1, 6) c) $y - int = 9$ d) Min
4. a) $x = \frac{5}{2}, 0$ b) $x = 2, -5$ c) $x = 2, -\frac{5}{2}$ d) $x = \pm 3, -\frac{7}{2}$
5. a) $x = \pm 3i\sqrt{2}$ b) $x = -3 \pm 4i$
6. a) $x = -5.05, 0.05$ b) $x = 2 \pm 5i$
7. a) 6.25 sec b) 655 ft c) 12.65 sec d) 0.36 and 12.14 sec
8. a) $22 + 14i$ b) 85

Chapter 6

1. a) $x = 0, \pm 3, \pm 2i$ b) $x = \pm i\sqrt{6}, \frac{2}{3}$ c) $x = 0, \pm 2, \pm 2i$
2. a) Degree=5, LC = 1 b) Degree=8, LC= -200
3. a) ↖, ↗ b) ↙, ↘ c) ↖, ↘ d) ↙, ↗
4. $y = -x^2(x + 6)^2(x + 2)(x - 3)^3(x - 7)$
5. a) $3x^3 - 2x^2 + 3x + 10$ $R = 11$ b) $2x^2 + 7x - 1$
6. $(x - 3)(x + 4)(2x + 3)(3x - 5)$ 7. $x = \pm 2i, -2, -5$