Unit 1: Function Family

1) **NC** Draw a rough sketch of each of the parent functions

a) Linear Equation:	b) Absolute Value Equation:	c) Quadratic Equation:	d) Square Root Equation:
e) Cubic	f) Cube Root	g) Exponential Growth	h) Logarithmic
Equation:	Equation:	Equation:	Equation:

2) **NC** $g(x)=b(x-m)^2+r$

What happens to the function when....

b >1	m>0	r>0
0 <b<1< td=""><td>m<0</td><td>r<0</td></b<1<>	m<0	r<0
b<0		

3) **NC** Find the requested information for the graph below. Make sure you use the correct parentheses and/or brackets.



4) **NC** For each graph below, list the transformations. Then, write the equation of the graph.



5) Find the domain & range for the following 2 functions: (Hint: It might help to draw a rough sketch!)

a)
$$f(x) = 3(x-2)^2 - 5$$
 b) $g(x) = \sqrt{x-5} + 2$

Unit 2: Systems

1) **NC** Solve the system by graphing.

5x+3y=9

x-3y=9



3) Graph the following system of inequalities.



4) Are the points below a solution to

 $5x + 3y \ge 9?$

a. (-2, 10) b. (2, -3) c. (4, 3) d. (1, 1)

2) **NC** Solve the system using any method.



5) Maria is hosting a party. She places an order at Pizza Hut for 5 pizzas and 4 breadsticks for a total of \$51. Halfway through the party, she realizes that she will need one more pizza and 2 more order of breadsticks. This time she was given a total of \$15. How much does a pizza cost? How much does a breadstick cost?

6) **NC** Janelle is selling cookies (x) and brownies (y) at a bake sale. A cookie costs \$1.50 and a brownie costs \$2.00. She needs to make at least \$50 to make a profit but she only has 20 cookies to sell. Write a system of linear inequalities to model this problem. (You don't have to solve)

7) The graphs of y = f(x) and y = g(x) are shown. A.REI.D.11



8) Find where the system intersects: $f(x) = x^2 + 5x - 10$; g(x) = x + 2

1) NC Simplify:
$$36^{\frac{1}{2}}$$
2) NC Simplify: $8^{\frac{2}{3}}$ 3) NC Convert to radical form: $x^{\frac{4}{5}}$ 4) NC Convert to exponential form: $(\sqrt[4]{x})^3$

6) Simplify:
$$X^{\frac{2}{3}} \cdot X^{\frac{3}{4}}$$

5) NC Simplify:

a) √72

b) $\sqrt{200}$

7) **NC** Simplify:
$$\frac{w^2 x y^{-3} z}{w^5 x^3 y^3 z^{-4}}$$
 8) **NC** Simplify: $\frac{x^{-3} y^2 z}{x^2 y^{-7} z}$

9) NC Solve:
$$\frac{4}{x} = \frac{-3}{x+8}$$
 10) Solve $\frac{x^2+11x+30}{x^2+3x-18}$

11)
$$\sqrt{3x-5}=7$$
 12) $\sqrt{90-x}=x$ 13) $\sqrt{x-5}=\sqrt{10-2x}$

Unit 3: Quadratics

1) Which of the following equations shows the minimum or maximum of h(x)? Is it a max or min?

h(x)=2(x+3)(x+1) $h(x)=2(x+2)^2-2$ $h(x)=2x^2+8x+6$

2) Factor to find the x-intercepts

a)
$$x^2 - 13x + 30 = 0$$

b) $x^2 + 5x - 14 = 0$

3) **NC** The graph below can be represented by which of the following equations:



4) **NC** Select all of the functions that can represent the following graph:

a) $2x^2 + 4x + 3$ b) 2(x + 3)(x + 1)c) $2(x + 2)^2 - 2$ d) 2(x - 3)(x - 1)e) $2x^2 + 8x + 6$ f) $2(x - 2)^2 - 2$

5) **NC** Solve the following equations using any method.

a) $(p-6)^2 = 9$ b) $x^2 - 11x + 19 = -5$ c) $x^2 + 4x + 6 = 0$

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6) How many times does each of the following functions intersect the x-axis?

a)
$$y = 3x^2 + \frac{2}{3}x - \frac{1}{3}$$

b) $f(x) = \frac{4}{3}x^2 - 4x + 3$
c) $f(x) = 2x^2 - \frac{1}{2}x + \frac{3}{2}$