Pre-Calculus: 1.3 – 1.5
Graph Transformations and Combining Functions.

(Transforming images and parent functions as well as combining functions using the five different properties.)

Name: _____

Date: _____ Hour: ____

SCORE: _____ / 64

Percent Correct: _____%

Be sure to SHOW ALL WORK. Answer questions completely. Be sure to write answers in spaces provided. If work or answers are in another location, please make note of that. There are **64** points possible.

16/8/4	Correct, complete, with appropriate work or explanations.
12/6/3	Correct strategy, minor errors, appropriate work or explanations.
8/4/2	Starts with appropriate strategy, some understanding, some errors.
4/2/1	Attempted appropriate strategy, minimal understanding.
0	Little or no understanding evident – OR – no work shown.

1. Find $(f + g)(x)$ and $(f - g)(x)$ given that $f(x) = 3x + 2$ and $g(x) = x^2 - 7$. **(4 points)**

a) $(f + g)(x) =$ _____

b) $(f - g)(x) =$ _____

2. Find $(f * g)(-2)$ and $\left(\frac{f}{g}\right)(3)$ given that $f(x) = \sqrt{x + 6}$ and $g(x) = x^2 - 1$. **(4 points)**

a) $(f * g)(x) =$ _____

b) $\left(\frac{f}{g}\right)(x) =$ _____

3. Find $(f°g)(x)$ and $(g°f)(x)$ with $f(x) = 3x + 5$ and $g(x) = x^2 - 4$ **(4 points each)**

   A. $(f°g)(x)$ B. $(g°f)(x)$
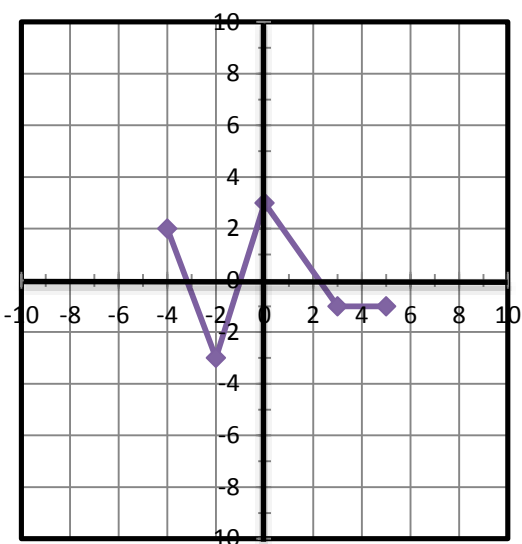
a) $(f°g)(x) = $ _____   **b)** $(g°f)(x) = $ _____

4. Perform the appropriate graph transformations and **draw the new graph**. (16 points each)

$$y = 3f(-x + 5) - 1$$

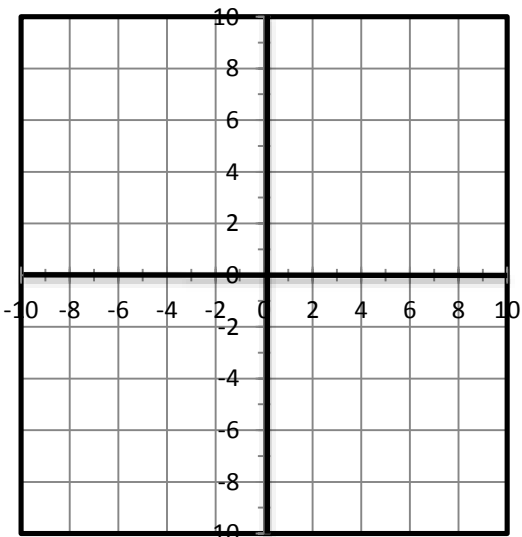| x	y	→	x	y	→	x	y	→	x	y	→	x	y

5. Perform the appropriate graph transformations and **draw the new graph**.(16 points each)

$$f(x) = -|2x - 4| + 3$$

Parent Function: _____

x	y	→	x	y	→	x	y	→	x	y	→	x	y
-2													
-1													
0													
1													
2													

6. Find the inverse of the function: $f(x) = \frac{3x-5}{x+4}$. **(8 points each)**

$$f^{-1}(x) = \underline{\hspace{3cm}}$$

7. State the transformations occurring in each function below. **(4 Points each)**

A. $f(x) = 5\sqrt{-x+3} - 2$

1. ___ = _____

2. ___ = _____

3. ___ = _____

4. ___ = _____

B. $f(x) = -\left(\frac{1}{2}x - 4\right)^3 + 7$

1. ___ = _____

2. ___ = _____

3. ___ = _____

4. ___ = _____

8. **Extra Credit:** What are the ten parent functions? (½ point each)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.