Name_____ Date_____

Pre-Calculus Review Test #1

1. Determine if the following are even, odd or neither:

   a. $f(x) = x^3 - 2x$ b. $g(x) = 4x^2 + 2x$ c. $h(x) = 3x^2 + 4$

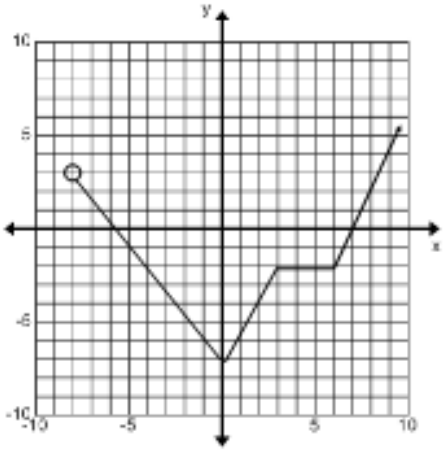
2. Find the difference quotient in simplest form for each function. $\frac{f(x+h) - f(x)}{h}, \quad h \neq 0$

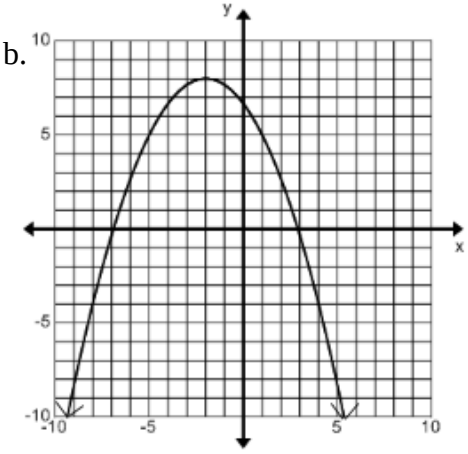
   a. $f(x) = 6 - 5x$ b. $f(x) = x^2 + 4x - 2$

3. What is the domain and range for each function (express in interval notation):

   a. $f(x) = \sqrt{5 - 3x}$ *b.* $g(x) = \frac{7}{3x - 12}$ *c.* $h(x) = \frac{2}{\sqrt{x - 7}}$

4. Determine the domain and range for each of the function below (express in interval notation):

   a. 

   b. 

5. For each, approximate the relative minimums and maximums, zeros and find the intervals where the functions are increasing and decreasing:

   a. $y = -x^2 - 5x + 3$ b. $y = x^3 + 4x^2$

6. Write the equations to depict the transformations:

a. $f(x) = x^3$ Write $g(x) =$

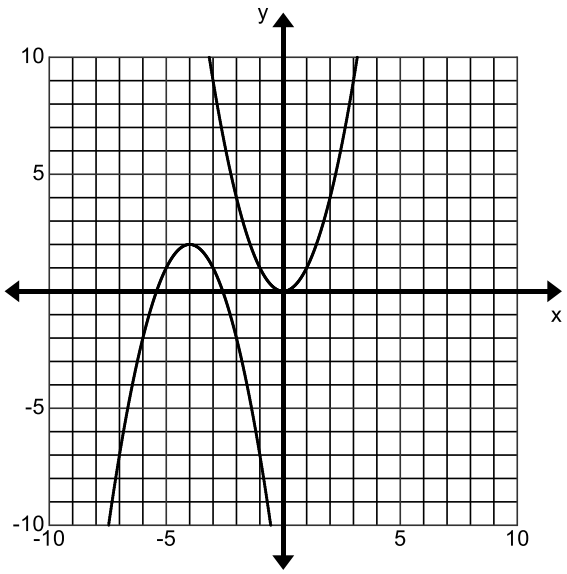
shrink of 1/3
reflection in the x-axis
left 7 units

b. $f(x) = |x|$ Write $g(x) =$

stretch of 4
right 6 units
down 2 units

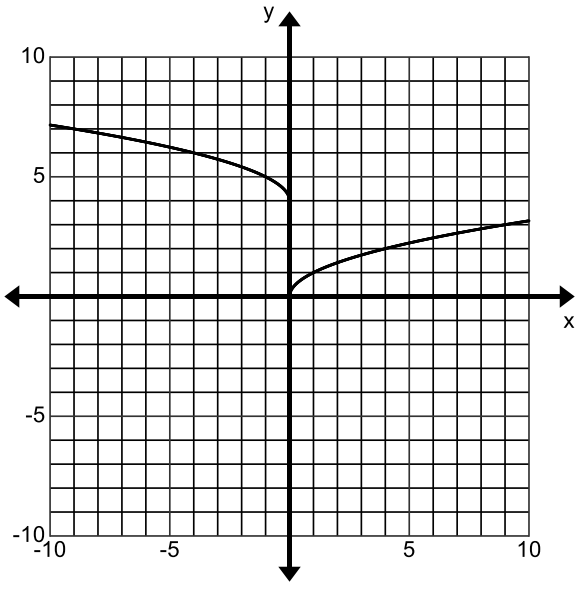
c. $f(x) = x^2$

$g(x) =$



d. $f(x) = \sqrt{x}$

$g(x) =$



7. Identify the transformation that maps $f(x) \to g(x)$

a. $f(x) = x^2$
$g(x) = -3(x+2)^2 - 1$

b. $f(x) = x^3$
$g(x) = \frac{1}{2}(-x-1)^3 + 8$

8. Find the average rate of change:

a. $(-3,5) \& (3,-7)$

b. $(0,-6) \& (-2,-2)$

9. Evaluate the given functions:

a. $f(x) = 3x + 5$
$f(2x+3)$

b. $g(x) = x^2 - 3x + 4$
$g(x-2)$

10. Given the equation $3y - 6x + 7 = 0$ and the point $(-8,6)$:

    a. using slope-intercept form write the equation of a line parallel to the given line and passes through the given point

    b. using point-slope form write the equation of a line that is perpendicular to the given line and passes through the given point

    c. put each equation from above in general form