Name_____

PRECALC JOURNAL
Graphing Common Functions

1. Use the given function to write a new function (using numbers) that would cause the graph of f to change in each of the following ways:

   a) $f(x) = \frac{1}{x^2}$ Move left. _____

   b) $f(x) = |x|$ Stretch the graph vertically _____

   c) $f(x) = \sqrt[3]{x}$ Stretch the graph horizontally. _____

   d) $f(x) = \frac{1}{x}$ Reflect over the x-axis _____

   e) $f(x) = x^3$ Move right. _____

   f) $f(x) = \sqrt{x}$ Reflect over the y-axis. _____

2. How do you determine if a graph has each of the following symmetries given its equation?

3. a) y-axis_____

   b) origin _____

   c) x-axis _____

4. a) A function is odd if _____ .

   b) A function is even if _____ .

5. Even functions have _____ symmetry while odd functions have _____ symmetry.

6. Decreasing intervals occur where _____

   while increasing intervals occur where _____

7. Relative maximums and minimums are _____

   while absolute maximums and minimums are _____

   _____ .

8. a) Given the <u>graph</u> of a function, you can determine that its inverse will be a function by _____

   _____ .

   b) Given the <u>graphs of two functions</u>, you can determine that they are inverses of each other by

   _____ .

9. a) The two steps for finding the inverse equation of a function are _____

   _____ and _____ .

   b) Given the <u>equations</u> of <u>two</u> relations, you can determine if they are inverses of each other by

   _____ .

10. Given a quadratic equation in standard form, the *x*-coordinate of the vertex is found by _____

while the *y*-coordinate is found by _____

11. a) The vertical asymptotes of a rational function are found by _____

_____ .

b) The horizontal asymptotes of a rational function are found by _____

_____ .

12. a) Slant (oblique) asymptotes occur when _____

_____ .

b) Slant asymptotes are found by _____

_____ .

13. A hole occurs in a graph when _____

_____ .

14. Create a piecewise function on a piece of graph paper that meets the following conditions. ***<u>It must be written in proper form including the inequalities!</u>*** Do not attempt to copy one from your notes or assignment—create your own!
    a) has at least 3 different functions
    b) contains no more than 1 linear piece
    c) passes the vertical line test!!!
    d) has at least two pieces with a vertical shift
    e) has at least two pieces with a horizontal shift
    f) has at least one piece that flips horizontally or vertically
    g) all pieces connect with each other

$$f(x)=\begin{cases} \\ \\ \\ \\ \\ \\ \\ \end{cases}$$

Attach your graph paper showing all of the common graphs and the transformation rules!