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 upward. _____

    b) $f(x) = |x|$ Reflect over the x-axis. _____

    c) $f(x) = \frac{1}{x}$ Stretch the graph vertically. _____

    d) $f(x) = x^3$ Move left. _____

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

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

    a) origin _____

    b) x-axis _____

    c) y-axis _____

3. a) A function is even if _____.

    b) A function is odd if _____.

4. Odd functions have _____ symmetry while even functions have _____ symmetry.

5. Increasing intervals occur where _____

    while decreasing intervals occur where _____

6. Absolute maximums and minimums are _____

    while relative maximums and minimums are _____

    _____.

7. 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

    _____.

8. 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

    _____.

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

While the *y*-coordinate is found by _____

10. a) The vertical asymptotes of a rational function are found by_____

_____.

b) The horizontal asymptotes of a rational function are found by_____

_____.

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

_____.

b) Slant asymptotes are found by_____

_____.

12. A hole occurs in a graph when _____

_____.

13. Create a piecewise function on a piece of graph paper that meets the following conditions. *__It must be written in proper form including the inequalities!__* 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) 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!