ALGEBRA II JOURNAL
Exponents and Roots

1. (a) A function is _____

    _____ .

    (b) You can determine whether the ***graph*** of a relation is a function by _____

    _____ .

2. (a) An inverse function is created by _____ .

    (b) Given the ***graph*** of the ***original*** function, you can determine whether its inverse will be a

    function by _____ .

3. (a) Given the ***graphs*** of two relations, you can determine if they are inverses of each other by

    _____ .

    (b) Given the ***equations*** of two relations, you can determine if they are inverses of each other by

    _____ .

4. When working with expressions with exponents, you _____ change the base.

5. Variables or numbers with negative exponents $\left(x^{-3} \text{ or } 2^{-1}\right)$ should be moved _____

    _____ while variables or numbers in the denominator of a fraction

    with negative exponents $\left(\dfrac{3}{y^{-5}} \text{ or } \dfrac{1}{6^{-2}}\right)$ should be moved to _____ .

6. When working with a fraction raised to a negative power $\left[\text{such as } \left(\frac{2}{y^2}\right)^{-3}\right]$, the easiest way to

    deal with the negative power is _____ .

7. Numbers expressed in <u>scientific notation</u> should have a negative exponent if the number is ____

    _____ and a positive exponent if the number is _____ .

8. When dividing numbers in scientific notation, all terms must be moved _____

    _____ .

9. (a) If the Even-Even-Odd rule for simplifying radicals is true, you should add an _____

    to an exterior variable which has an even _____ , an even _____ ,

    and an odd _____ .

    (b) Fill in numbers for the exponents in the problem below so that *x* would NOT need an
    absolute value, but *y* would need an absolute value in the final solution.

    $$\sqrt{x^{\square}y^{\square}} \cdot \sqrt{x^{\square}y^{\square}}$$

10. To graph a square root or cube root, the T-table for x^2 or x^3 is altered by _____

    _____ .

11. (a) An exponent written as a fraction is called a _____ exponent.

(b) The expression $b^{\frac{x}{y}}$ can also be written as _____ .

12. Before you can multiply two radicals with different indices $\left(\text{such as } \sqrt[3]{x} \cdot \sqrt[5]{x}\right)$ together, you

must _____

_____ .

13. An expression with one radical inside another radical can be simplified as

$\left(\sqrt[m]{\sqrt[n]{x}}\right)$ = _____ .

14. When solving an equation containing **TWO** square roots:

(a) The first step is to _____ .

(b) In the second step you must square an expression such as $\left(\sqrt{x+3} - 2\right)^2$ by _____ .

(c) The last step of the problem is _____ .

15. (a) An expression is in quadratic form if_____

_____ .

(b) If an equation is in quadratic form, you should try to solve it by _____

using the exponent on the _____ term.

16. Power regression can be used to fit a curve to data which is shaped like vertical or horizontal

_____ and _____ .

17. List the following rules, facts, or formulas.
   a) List the six rules of exponents.

   b) Sketch the graph of each of the following: $y = x^2$, $y = x^3$, $y = \sqrt{x}$, $y = \sqrt[3]{x}$. **Show the standard T-table for each.**