

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 (x^{-3} or 2^{-1}) should be moved _____
 _____ while variables or numbers in the denominator of a fraction with negative exponents $\left(\frac{3}{y^{-5}}$ or $\frac{1}{6^{-2}}\right)$ should be moved to _____.
6. When working with a fraction raised to a negative power [such as $\left(\frac{2}{y^2}\right)^{-3}$], the easiest way to deal with the negative power is _____.
7. Numbers expressed in **scientific notation** 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 (such as $\sqrt[3]{x} \cdot \sqrt[5]{x}$) together, you must _____
 _____.
13. An expression with one radical inside another radical can be simplified as
 $(\sqrt[m]{\sqrt[n]{x}}) =$ _____.
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 $(\sqrt{x+3} - 2)^2$ 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.**

