

Thinking Ahead about Exponents – You should understand these questions fully before the next class. Check your answers with the key on your instructor’s website. You can get help with this work from the following sources:

- p. 3 of your textbook
- Visit your instructor during office hours
- Go to the Algebra Alcove

7. Write each term in the appropriate blank: **factor, exponent, base, multiplication**

In the expression, 5^3 , the 5 is called the base and the 3 is called the exponent. This notation is represents repeated multiplication of the same factor.

<p>8. Rewrite the following using exponents:</p> <p>a. $7 \cdot 7 \cdot 7 \cdot 7 = 7^4$</p> <p>b. $y \cdot y \cdot y \cdot x \cdot x = y^3 x^2$</p> <p>c. $(x + 3)(x+3) = (x + 3)^2$</p>	<p>9. Write as the product of factors:</p> <p>a. $8^3 = 8 * 8 * 8$</p> <p>b. $w^5 = w * w * w * w * w$</p> <p>c. $(y - 2)^3 = (y - 2)(y - 2)(y - 2)$</p>
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10. Find the value of each expression. Hint: Many calculators and computer programs use the carat, “^” symbol for an exponent. To enter 5^3 into a graphing calculator, type “5^3”.

$$10^1 = \underline{10} \qquad 10^2 = \underline{100} \qquad 10^3 = \underline{1000}$$

$$10^4 = \underline{10000} \qquad 10^6 = \underline{1,000,000} \qquad 10^9 = \underline{1,000,000,000}$$

11. Look for a pattern in the numbers above. What is the relationship between the power of 10 and its value?

The power will determine how many zeros there are in the product.

12. Based on this pattern, predict the value of 10^{12} without using a calculator.

$$1,000,000,000,000$$

13. Based on this pattern, predict the value of 10^0 without using a calculator.

$$1$$