What are Exponents?

Worksheet

An exponent n tells you how many times to multiply the base a by itself: a = a a ... a (n times). For example, 2 = 2 2 2 = 8.

$$a^n = a \times a \times ... \times a$$

Questions

1. What is 4?

A) 12
B) 64
C) 81
D) 7

2. Simplify x x.

A) x
B) x
C) x
D) x

3. What is 7?

A) 0
B) 7
C) 1
D) Undefined

4. What is 2?

A) 8
B) 1/8
C) 8
D) 1/8

5. Calculate 2.

6. Simplify 3 3 using the product rule.

7. Evaluate 5.

8. Define: What does an exponent mean?

9. Define: What is the product rule for exponents?

10. Define: What is a?

Answer Key

1. B) 64 - 4 = 444 = 64.
2. A) x - Product rule: add exponents, x^(5+3) = x.
3. C) 1 - Any nonzero base to the power 0 equals 1.
4. B) 1/8 - 2 = 1/2 = 1/8.
5. 2 means 2 multiplied by itself 5 times 22222 = 32
6. Product rule: a a = a 3 3 = 3^(2+4) = 3 = 729
7. Zero exponent rule: any nonzero base to the power 0 equals 1 5 = 1
8. It tells you how many times to multiply the base by itself: a = a a ... a (n times).
9. a a = a - add the exponents when multiplying same-base powers.
10. Any nonzero number raised to the power 0 equals 1.