

**Elementary Algebra**  
**Skill-BUILDER # E – 5**  
**Applying the Zero Exponent Rule**

The following rule applies when an expression representing any nonzero real number is raised to 0.

For any nonzero real number  $a$ ,

$$a^0 = 1.$$

The rule says that when a nonzero real number is raised to 0, the result is always 1.

**Examples**

1.  $4^0 = 1$

2.  $x^0 = 1$

3.  $(4x)^0 = 1$

4.  $4x^0 = 4 \cdot 1 = 4$

5.  $4^0 x = 1 \cdot x = x$

6.  $(4 + x)^0 = 1$

7.  $4^0 + x^0 = 1 + 1 = 2$

8.  $4^0 + x = 1 + x$

9.  $4 + x^0 = 4 + 1 = 5$

10.  $(4^0 + x^0)^2 = (1 + 1)^2 = 2^2 = 4$

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Simplify the following using the zero exponent rule.

1. $10^0$
2. $n^0$
3. $(2xy)^0$
4. $2(xy)^0$
5. $2xy^0$
6. $2x^0y$
7. $2^0xy$
8. $2^0xy^0$
9. $2^0x^0y^0$
10. $2 + x^0 + y$
11. $2 + (x + y)^0$
12. $(2 + x)^0 - y$

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Answer Key:

1. 1

2. 1

3. 1

4. 2

5.  $2x$

6.  $2y$

7.  $xy$

8.  $x$

9. 1

10.  $3 + y$

11. 3

12.  $1 - y$

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