

Unit 3 Day 4
3-4 Zero and Negative Exponents

March.3rd, 2016

2^0 Continue the Pattern: $2^4 = 16$
 $2^3 = 8$
 $2^2 = 4$
 $2^1 = 2$
 $2^0 = 1$

$$2^0 = 2^{1-1} = \frac{2^1}{2^1} = 1$$

$$x^0 = x^{1-1} = \frac{x^1}{x^1} = 1$$

$$x^0 = 1$$

1) Simplify
 $7^0 = 1$

2) $\left(\frac{1}{3}\right)^0 = 1$

3) $(-8)^0 = 1$

4) $-8^0 = -1$

5) $(3x^5)^0 = 1$

6) $\left(\frac{-5}{6}\right)^0 = 1$

7) $4x^0 = 4 \cdot 1 = 4$

8) $3(2x^3)^0 = 3 \cdot 1 = 3$

9) $-\frac{1}{2}x^0 = -\frac{1}{2} \cdot 1 = -\frac{1}{2}$

What about 2^{-1} ?

$$2^2 = 4$$

$$2^1 = 2$$

$$2^0 = 1$$

$$2^{-1} = \frac{1}{2}$$

$$2^{-2} = \frac{1}{4}$$

$$2^{-3} = \frac{1}{8}$$

$$2^{-4} = \frac{1}{16}$$

$$\left(\frac{1}{2^2}\right)$$
$$\left(\frac{1}{2^3}\right)$$
$$\left(\frac{1}{2^4}\right)$$

$$x^{-a} = \frac{1}{x^a}$$

Simplify (Write w/ positive exponents)

$$10) 7^{-2} \\ = \frac{1}{7^2}$$

$$11) x^{-7} \\ = \frac{1}{x^7}$$

$$12) -5^{-2} \\ = -\frac{1}{5^2}$$

$$13) (-5)^{-2} \\ = \frac{1}{(-5)^2} \\ = \frac{1}{5^2} \text{ or } \frac{1}{25}$$

$$-5^2 = -25 \\ (-5)^2 = 25$$

$$14) (-2)^{-3} \\ = \frac{1}{(-2)^3} \\ = -\frac{1}{2^3} \text{ or } -\frac{1}{8}$$

$$15) \frac{1}{3^{-2}} \\ = 3^2$$

$$16) \frac{1}{2^{-5}} \\ = 2^5$$

Practice 3-4, Take Home Quiz