

Negative and Zero Exponents Rules



Overview of problems



Example Set: A

Rewrite the expression using positive exponents

$$x^{-6}$$

$$y^{-4}$$

$$(2x)^{-2}$$

$$\frac{1}{x^{-3}}$$

$$\frac{y^{-5} x^3}{z^0}$$

$$-4x^{-2} y^{-4}$$

$$\frac{6x^{-7} y^{-9}}{-2x^{-1} y^0}$$

$$\frac{8}{(xyz)^{-3}}$$



Example Set: B

Evaluate the expression

$$4^{-2}$$

$$\frac{1}{3^{-3}}$$

$$7^{-4} \cdot 7^2$$

$$-2 \cdot (2)^{-4}$$

$$\frac{6^3 \cdot 6^{-5}}{6^{-7}}$$

$$\frac{1}{3^2 \cdot 3^{-5}}$$



Example Set: C

Simplify the expression

$$3x^4 \cdot x^{-6}$$

$$(-2y)^{-3}$$

$$\frac{2x^2y^3}{(xy)^{-2}}$$

$$(x^5y^{-2})^{-2}$$

Negative and Zero Exponents Rules



Overview of problems- KEY



Example Set: A

Rewrite the expression using positive exponents

$$x^{-6} = \frac{1}{x^6}$$

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

$$(2x)^{-2} = \frac{1}{(2x)^2}$$

$$\frac{1}{x^{-3}} = x^3$$

$$\frac{y^{-5} x^3}{z^0} = \frac{x^3}{y^5}$$

$$-4x^{-2} y^{-4} = \frac{-4}{x^2 y^4}$$

$$\frac{6x^{-7} y^{-9}}{-2x^{-1} y^0} = \frac{-3}{x^6 y^9}$$

$$\frac{8}{(xyz)^{-3}} = 8(xyz)^3$$



Example Set: B

Evaluate the expression

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

$$\frac{1}{3^{-3}} = 27$$

$$7^{-4} \cdot 7^2 = \frac{1}{49}$$

$$-2 \cdot (2)^{-4} = -\frac{1}{8}$$

$$\frac{6^3 \cdot 6^{-5}}{6^{-7}} = 7776$$

$$\frac{1}{3^2 \cdot 3^{-5}} = 27$$



Example Set: C

Simplify the expression

$$3x^4 \cdot x^{-6} = \frac{3}{x^2}$$

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

$$\frac{2x^2y^3}{(xy)^{-2}} = 2x^4y^5$$

$$(x^5y^{-2})^{-2} = \frac{y^4}{x^{10}}$$