

NEGATIVE AND ZERO EXPONENTS

Fill in the table.

| | | | | | | | | |
|-------|-------|-------|-------|-------|----------|----------|----------|----------|
| 2^4 | 2^3 | 2^2 | 2^1 | 2^0 | 2^{-1} | 2^{-2} | 2^{-3} | 2^{-4} |
| | | | | | | | | |

Property of Exponents:

*For every nonzero number b , $b^{-n} = \frac{1}{b^n}$.

EXAMPLES: $6^{-4} =$

$(-4)^{-2} =$

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

*For every nonzero number b , $b^0 = 1$.

EXAMPLES: $5^0 =$

$(-2)^0 =$

$(34.693)^0 =$

$\left(\frac{1}{4}\right)^0 =$

Simplify each expression.

1) $11m^{-5} =$

2) $-4x^{-3}y =$

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

$$4) (4m^2n^{-2})(-2mn^4) =$$

$$5) (5a^{-3}b^{-1})(3a^2b) =$$

$$6) (4a^{-4})^3 =$$

$$7) \frac{-24a^{-3}b^4}{6a^{-5}b^2c^0} =$$

$$8) (x^2y^{-2}z^0)(-3x^{-2}y^3z)^2 =$$

$$9) (2mn^{\frac{1}{2}})^2(3m^{-3})^2 =$$

10) Evaluate the expression $2^{-4}r^2s^{-2}$ for $r = -3$ and $s = 4$.