

Unit 3: Powers & Exponents

3.2B Negative Exponents

Continue each of the following patterns:

$2^4 =$

$2^3 =$

$2^2 =$

$2^1 =$

$2^0 =$

$3^4 =$

$3^3 =$

$3^2 =$

$3^1 =$

$3^0 =$

How does the result of a negative exponent connect to the result of a positive exponent?

Another approach.....

What exponent law is likely to lead to a negative exponent?

Rule: $b^{-m} =$

Ex. Simplify (write with a single positive exponent) & then evaluate:

a) 5^{-3}

b) 7^{-1}

c) 10^{-5}

d) -2^{-3}

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

f) $-(-2)^{-6}$

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

h) $\frac{1}{5^{-2}}$

Ex. Simplify using exponent laws:

a) $4^3 \times 4^{-1}$

b) 2×2^{-4}

c) $3^5 \div 3^8$

d) $\frac{9}{9^{-4}}$

e) $\frac{6^{-7}}{6^{-2}}$

f) $(5^{-2})^3$

g) $(8^3)^{-1}$

h) $(7^{-3})^{-4}$

i) $(5 \times 3)^{-2}$

j) $\left(\frac{3}{4}\right)^{-3}$