

Zero and Negative Exponents MathPrint view

Objectives:

- Review properties of zero and negative exponents
- Calculate expressions containing exponents

Review properties of zero and negative exponents

- Any non-zero base raised to the zero power is 1, $x^0 = 1$
- A negative exponent in the numerator equals a positive exponent in the denominator. $x^{-n} = \frac{1}{x^n}$
- A negative exponent in the denominator equals a positive exponent in the numerator. $\frac{1}{x^{-n}} = x^n$

Calculate expressions containing exponents

Example 1: Calculate 10^0 .

Press these buttons:  to get answer 1

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

Press these buttons:  to get answer 0.125

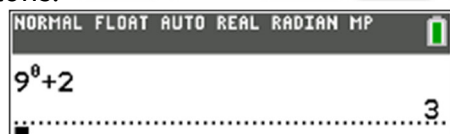
Example 3: Calculate $\frac{1}{3^{-2}} = 3^2$

Press these buttons:  to get answer 9

Or press these buttons:  to get (the same) answer 9

Example 4: Use  to exit the exponent. Calculate $9^0 + 2$

Press these buttons: 

See this screen: 

Try it!

Calculate.

1) $9^{0.6}$

2) $9^0 \cdot 6$

3) $6 \cdot 0^9$

4) $\frac{3}{9^0}$

5) $-9^0 + 2$

6) $(2+9)^0$

7) $(2-9)^0$

8) $27 \cdot 3^{-2}$

9) $\frac{27}{3^{-2}}$

10) $(3+2)^{-2}$

11) $3+2^{-2}$

12) $(6-8)^{-3}$

13) $6-2^{-3}$

14) 4^{5-7}

Answers

- 1) $9^{0 \times 6}$ = 1
- 2) $9^0 \times 6$ = 6
- 3) 6×0^9 = 0
- 4) $3 \div 9^0$ = 3
- 5) $(-9)^0 + 2$ = 3
- 6) $(2+9)^0$ = 1
- 7) $(2-9)^0$ = 1
- 8) 27×3^{-2} = 3

- 9) $27 \div 3^{-2}$ = 243
- 10) $(3+2)^{-2}$ = 0.04
- 11) $3 + 2^{-2}$ = 3.25
- 12) $(6-8)^{-3}$ = -0.125
- 13) $6 - 2^{-3}$ = 5.875
- 14) 4^{5-7} = 0.0625