

1.7 Exponents and Order of Operations

* Exponents

Exponent \nearrow
Base \nearrow

$$6^3 = 6 \times 6 \times 6$$

Ex 1. Write using exponential notation.

a. $11 \times 11 \times 11 \times 11 \times 11$

b. $13 \times 13 \times 15 \times 15 \times 15 \times 15$

Ex 2. Evaluate:

a. 4^2
Base = _____

b. -4^2
Base = _____

c. $(-4)^2$
Base = _____

* Order of Operations

1. Perform all operations within grouping symbols: $()$, $\{ \}$, $[]$, $| |$, $\sqrt{\quad}$, $---$
2. Evaluate exponents
3. Multiply or Divide (in order from left to right)
4. Add or Subtract (in order from left to right)

Ex 3. Simplify:

a. $9 \cdot 3 - 8 \div 4$

c. $36 \div 6 \cdot 2$

b. $48 \div 3 \cdot 2^2$

d. $64 \div 8 \cdot 2 + 4$

e. $(10-7)^4 + 2 \cdot 3^2$

h. $\frac{25+8 \times 2-3^3}{2(3-2)}$

f. $36 \div [20 - (4 \cdot 2)] + 4^3 - 6$

i. $\frac{36 \div 6 \cdot 3 + 5}{12 \div (6 + 6)}$

g. $2^3[3^2 - (10 \div 2)] - 7 \cdot 3$