

Unit 3: Powers & Exponents

3.1 Using Exponents to Describe Numbers

b^e

 base exponent

 power - multiply the base by itself a number of times given by the exponent

Ex. Write in exponential form & evaluate:

a) $2 \times 2 \times 2 \times 2 \times 2$

$$= 2^5$$

$$= \boxed{32}$$

y^x
 x^y
 x^y

b) $(-3) \times (-3) \times (-3) \times (-3)$

$$= (-3)^4$$

* not -3^4

$$= \boxed{81}$$

c) $-4 \times 4 \times 4$

$$= -4^3$$

$$= \boxed{-64}$$

Ex. Write in expanded form & evaluate:

a) 5^4

$$= 5 \cdot 5 \cdot 5 \cdot 5$$

$$= 625$$

b) $(-3)^2$

$$= (-3) \times (-3)$$

$$= 9$$

c) -3^2

$$= -3 \cdot 3$$

$$= -9$$

d) $-(-4)^3$

$$= -(-4) \times (-4) \times (-4)$$

$$= -(-64)$$

$$= 64$$

e) -2^3

$$= -2 \times 2 \times 2$$

$$= -8$$

f) $(-2)^3$

$$= (-2) \times (-2) \times (-2)$$

$$= -8$$