Practice - Using Exponents to Describe Numbers

1) For each power, identify the `base` and the `exponent`.

a) 5^2

base: ___5___

exponent: ___2___

b) 2^3

base: ___2___

exponent: ___3___

c) $(-3)^4$

base: ___-3___

exponent: ___4___

means

★ d) -3^4 $-1 \cdot 3^4$

Careful!

base: ___3___

exponent: ___4___

e) $\left(\dfrac{2}{3}\right)^2$

base: ___$\dfrac{2}{3}$___

exponent: ___2___

f) 2.1^6

base: ___2.1___

exponent: ___6___

2) Write each expression as a power (do not evaluate).

Base **Exponent**

a) $6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 6$ $= 6^7$

b) $9 \cdot 9 \cdot 9 \cdot 9$ $= 9^4$

c) $(-7)(-7)(-7)(-7)(-7)$ $= (-7)^5$

NOT part of the power

★ d) $-(0.4)(0.4)(0.4)(0.4)$ $= -(0.4)^4$

Careful!

e) $\left(\dfrac{2}{5}\right) \times \left(\dfrac{2}{5}\right) \times \left(\dfrac{2}{5}\right) \times \left(\dfrac{2}{5}\right)$ $= \left(\dfrac{2}{5}\right)^4$

3) Write each power as repeated multiplication (expanded form), then evaluate.

a) 3^4 = $3 \cdot 3 \cdot 3 \cdot 3$
= 81

b) 5^3 = $5 \cdot 5 \cdot 5$
= 125

c) $(-2)^2$ = $(-2)(-2)$
= 4

d) -5^3 = $-1 \cdot 5 \cdot 5 \cdot 5$
= -125

e) $\left(\dfrac{1}{4}\right)^2$ = $\left(\dfrac{1}{4}\right)\left(\dfrac{1}{4}\right)$
= $\dfrac{1}{16}$

★ f) $-(-0.4)^5$ = $-1 \cdot (-0.4)(-0.4)(-0.4)(-0.4)(-0.4)$
= 0.01024

Careful!
Not part of power!

4) Evaluate each of the following.

a) 6^3 = 216

b) 2^7 = 128

c) -4^2 = -16

d) $\left(-4\right)^2$ = 16

e) 1^{12} = 1

f) $\left(-\dfrac{4}{5}\right)^2$ = $\dfrac{16}{25}$