

## Review Assignment #2

1. Write as a product or quotient of powers.

a)  $(3 \times 4)^3$

b)  $[(-5) \times 2]^4$

c)  $\left(\frac{1}{4}\right)^4$

d)  $-\left(\frac{9}{3}\right)^3$

2. Simplify.

a)  $-(2^3)^3$

b)  $(6^2)^0$

c)  $[(-5)^2]^3$

d)  $-[(-3)^2]^4$

3. Simplify each expression, then evaluate it.

a)  $[(-3) \times (-2)]^4$

b)  $\left(\frac{1}{2}\right)^5$

c)  $(6^0)^4$

d)  $[(-3)^2]^3$

4. Is the value of a power with a negative base always negative?

Or, is it always positive? Or, is it sometimes negative and sometimes positive?

Illustrate your answer with some examples.

5. Simplify and then evaluate.

a)  $(-5)^3 \times (-5)^2 \div (-5)^1$

b)  $[(-9)^6 - (-9)^3]^0$

c)  $\frac{(-1)^2 \times (-1)^4}{(-1)^3 \times (-1)^2}$

d)  $(-4)^6 \div (-4)^4 \times (-4)^0$

e)  $\frac{(2^4)^3 \times (2^2)^4}{(2^2 \times 2^6)^2}$

f)  $(4^9 \div 4^6)^2 - (2^8 \div 2^6)^2$

6. Identify, then correct, and errors in the work shown below.

a)  $(3^2 \times 3^3)^2 = (3^{2 \times 3})^2$   
 $= (3^6)^2$   
 $= 3^{6+2}$   
 $= 3^8$   
 $= 6561$

b)  $3^3 \times 3^4 \div 3^6$   
 $= 3^{3 \times 4 - 6}$   
 $= 3^2$   
 $= 6$

## Review Assignment #2 ANSWERS.

① a)  $3^3 \times 4^3$     b)  $(-5)^4 \times 2^4$     c)  $\frac{1^4}{4^4}$     d)  $-\left(\frac{9^3}{3^3}\right)$

② a)  $-(2^9)$  or  $-2^9$     b)  $6^0 = 1$     c)  $(-5)^6$     d)  $-(-3)^8$

③ a)  $(-3)^4 \times (-2)^4$   
 $81 \times 16$   
~~256~~  
 $1296$

b)  $\frac{1^5}{2^5}$   
 $= \frac{1}{32}$   
 $= 0.03125$

c)  $6^0 = 1$

d)  $(-3)^6 = 729$

④ No. If a power with a negative base has an odd exponent, the answer will be negative.  
 ex:  $(-2)^3 = -8$     or     $(-2)^5 = -32$

But if a power with a negative base has an even exponent, the answer will be positive.

ex:  $(-2)^2 = 4$     or     $(-2)^4 = 16$

⑤ a)  $(-5)^4 = 625$     b)  $(-9)^0 - (-9)^0 = 1 - 1 = 0$     c)  $(-1)^1 = -1$

d)  $(-4)^6 + (-4)^4 = 4096 + 256 = 4352$     e)  $2^4 = 16$     f)  $4^6 - 2^4 = 4096 - 16 = 4080$

⑥ a) Add exponents 2 and 3 in the first step (not multiply)  
 Multiply exponents in second step (not add)

b) Add the 3 and 4 exponents and subtract the 6.