Name: _____ Date: _____

BLM 4–7

Section 4.2 Extra Practice

1. Write each expression with positive exponents.

a) c^{-4}

b) mn^{-2}

c) $3x^{-3}$

d) $4m^3n^{-2}$

e) $-2x^{-4}$

f) $-5x^{-3}y^{-2}$

2. Simplify each expression. State the answer using positive exponents.

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

b) $(3^0)(3^{-3})$

c) $\dfrac{5^3}{5^{-4}}$

d) $\dfrac{(3^{-7})(4)}{(3^9)(4^3)}$

e) $(2^4)^3$

f) $(3^2)^{-4}$

g) $[(4)(2^{-3})]^{-2}$

h) $\left(\dfrac{6^2}{5^{-3}}\right)^{-3}$

3. Simplify each expression. State the answer using positive exponents.

a) $\left(2xy^2\right)\left(3x^{-1}y^0\right)$

b) $\left(-3m^2n\right)\left(-4m^4n^{-2}\right)$

c) $\dfrac{m^3n^{-2}}{\left(mn^4\right)\left(m^5n^2\right)}$

d) $(-3xy^4)^2$

e) $(4xy^{-3})^{-2}$

f) $-4x(5x)^3$

g) $\left(\dfrac{6mn^3}{4m^2n}\right)^2$

h) $\left(\dfrac{3x}{-2y^2}\right)^{-2}$

4. Simplify, then evaluate. Give the result as a fraction where necessary.

a) 5^{-2}

b) 7^0

c) $\left(\dfrac{6}{7}\right)^{-2}$

d) $-(-3)^2$

e) $\dfrac{1}{(-3)^{-2}}$

f) $3^{-1}+4^{-1}$

g) $-5(m^0+n^0)^2$

h) $\dfrac{5^{-1}+5^{-2}}{5^{-3}}$

i) $\left[\left(\dfrac{3}{4}\right)^{-2}\right]^3$

5. A bacterial culture in a lab has 500 cells. The number of cells doubles every hour. This relationship can be modelled by the equation $N = 500(2)^h$, where N is the estimated number of bacteria cells and h is the time in hours.

a) If the conditions remain ideal, how many cells will there be after 6 h?

b) How many cells were there 2 h ago?

6. Dana evaluated the expression $\left(\dfrac{1}{2}\right)^{-3} = 8$.

Is she correct? Justify your answer.

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