Pre-Algebra Chapter 4 Pre-Test

1.) (5 pts each, 10 pts total) (4-1) Use divisibility rules to create a prime factorization tree for each of the following numbers.

    a) 54

    b) 96

2.) (5 pts each, 10 pts total) (4-2) Write using exponents

    a) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot a \cdot a \cdot a \cdot a \cdot b \cdot c \cdot c \cdot c$

    b) $5 \cdot 5 \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y$

3.) (5 pts total) (4-2) Evaluate.

$$(6 + h^3)^2 \text{ for h = 2}$$

4.) (5 pts each, 15 pts total) (4-3) Find the Great Common Factor (GCF) for each of the following.

    a) 28 and 36

    b) x^4y^7 and x^6y^3

    c) $18a^3b^2$ and $24a^2bc$

5.) (5 pts each, 15 pts total) (4-4) Write in simplest form.

a) $\dfrac{21}{28}$

b) $\dfrac{9h^5 k}{12h^4 k^3}$

c) $\dfrac{42a^8 b^6}{56a^3 b^{11}}$

6.) (5 pts each, 15 pts total) Evaluate. Write in simplest form.

a) $\dfrac{x}{y}$ for x = 12 and y = 21

b) $\dfrac{z+2}{z^2-4}$ z = 6

c) $\dfrac{y^3-4y+6}{y^3}$ for y = -2

7.) (5 pts each, 15 pts total) (4-8) Simplify each expression.

a) $\dfrac{8^6}{8^3}$

b) $(-5)^0$

c) n^{-4}

8.) (5 pts each, 10 pts total) (4-9) Write each of the following in scientific notation.

a) 7630000

b) 0.000624

9.) (5 pts total) (4-9) Multiply. Write your result in scientific notation.

$$(2 \times 10^5) \times (4 \times 10^3)$$