Name: _____ Date: _____

Chapter 4 Prerequisite Skills

Show all your work.

1. What are the prime factors of each number?

   a) 54

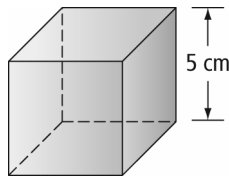   **b)** 864

   c) 7203

   d) 900

2. Write each expression as a power.

   a) (6)(6)(6)(6)

   b) (−4)(−4)(−4)(−4)(−4)

3. The area of a square on grid paper is 49 units. Draw the square and label its area and side length.

4. A cube has an edge length of 5 cm. What is its volume

   a) in repeated multiplication form?

   b) in exponential form?

5 cm

5. Write each expression as a single power.

   a) $(-3)^2(-3)^5$

   b) $\left(-2^2\right)^4$

   c) $\dfrac{7^9}{7^2}$

   d) $(4)^3 (8)^2$

   e) $\dfrac{\left(-6^4\right)\left(-6^3\right)}{\left(-6^2\right)^3}$

6. Evaluate each expression.

   a) 8^3

   b) $(3^4)(2^5)$

   c) $\left(\dfrac{9^4}{-3^4}\right)^0$

   d) $5^0 - \left(\dfrac{1}{2}\right)^2$

7. The stopping distance, *d,* in metres, for a car is given by the formula $d = 0.008s^2$, where *s* is the speed of the car, in kilometres per hour.

   a) What is the stopping distance if the car is travelling at 105 km/h when it starts to brake?

   b) What is the speed of the car if it takes 51.2 m to come to a stop?

8. The formula for the volume of a sphere is $V = \dfrac{4}{3}\pi r^3$, where *V* is the volume and *r* is the radius of the sphere. What is the volume of a sphere with a radius of 4 cm? Give the answer to the nearest cubic centimetre.

r = 4 cm