

Name: KEY

Ch. 3 Review

Directions: Solve each problem using the 5-step method. Be sure to round your answer to the nearest 10th and label appropriately.

1. A car weighs 12,500 N and the area of the four tires is 240 cm². How much **pressure** is beneath the car?

$$P = \frac{F}{A} = \frac{12,500 \text{ N}}{240 \text{ cm}^2} = \boxed{52.1 \text{ N/cm}^2}$$

2. If a pressure of 843 N/cm² is spread out over an area of 58 cm², how much **force** is being exerted?

$$F = P \times A \quad 843 \times 58 = \boxed{48,894.0 \text{ N}}$$

3. If a force of 980 N creates a pressure of 16.5 N/cm², over what **area** is the force being applied?

$$A = \frac{F}{P} = \frac{980}{16.5} = \boxed{59.4 \text{ cm}^2}$$

4. A piece of oak has a mass of 475 grams and a volume of 522.5 cm³. What is the **density** of this sample, and will this piece of wood float in water?

$$D = \frac{M}{V} = \frac{475 \text{ g}}{522.5 \text{ cm}^3} = \boxed{0.9 \text{ g/cm}^3} \quad \text{YES!}$$

5. Steel has a density of 7.8 g/cm³. If a piece of steel has a mass of 975.4 grams, what is the sample's **volume**?

$$V = \frac{M}{D} = \frac{975.4}{7.8} = \boxed{125.1 \text{ cm}^3}$$

6. Mercury has a density of 8.6 g/cm³. If you have 225 cm³ of mercury, how much **mass** will it have?

$$M = D \times V \quad 8.6 \times 225 = \boxed{1935.0 \text{ g}}$$