

- 1) While driving in Australia, you fill your car with 55 L of gas costing \$44.55 (Australian). What is the equivalent cost per gallon in U.S. dollars? (Note: 1 U.S. gal = 3.785 L and \$1 Australian = \$0.7597 U.S. at the time this problem was written.) **3 points**

$$55 \text{ L} \times \frac{1 \text{ US GAL}}{3.785 \text{ L}} = 14.5310436 \text{ U.S. Gal}$$

$$\$44.55 \text{ (AUS)} \times \frac{\$0.7597 \text{ (US)}}{\$1 \text{ (AUS)}} = \$33.844635 \text{ (US)}$$

$$\frac{\$33.844635 \text{ (US)}}{14.5310436 \text{ gal}} = \$2.329126/\text{gal}$$

will accept 2.33 or 2.3

- 2) True/False (1 point each)

- a. The prefix 'pico' represents 10^{-9} **FALSE**
 b. The prefix 'macro' represents 10^9 **FALSE**
 c. The prefix 'centi' is represented by 'c' **TRUE**

- 3) A new penny has a mass of 2.49 g and a volume of 0.02404 in^3 . Is the penny pure copper? (Note: $1 \text{ in} = 2.54 \text{ cm}$...you may need to adjust your conversation factor to better suit the problem) **4 points**

$$D = \frac{m}{V} = \frac{2.49 \text{ g}}{0.02404 \text{ in}^3} = 6.320679 \text{ g/cm}^3$$

it does not match
Cu density of 8.96

$$0.02404 \text{ in}^3 \times \frac{16.387 \text{ cm}^3}{1 \text{ in}^3}$$

$$(2.53 \text{ cm})^3 = 16.387 \text{ cm}^3$$