

Assignment 4.1

Name _____

1) Convert 10 quarts into gallons

$$10q \times \frac{1 G}{4 q}$$

$$\boxed{2.5 G}$$

2) Convert 18 ounces into cups

$$18^{Fl} oz \times \frac{1 C}{8 Fl oz}$$

$$\boxed{2.25 C}$$

3) Convert 7 tbs into tsp

$$7 Tbsp \times \frac{3 tsp}{1 Tbsp}$$

$$\boxed{21 tsp}$$

4) Convert 50 pounds into kg

$$50 lbs \times \frac{1 kg}{2.2 lbs}$$

$$\boxed{22.73 kg}$$

5) Convert 7 cups into Litres

$$7 C \times \frac{236.6 mL}{1 C} \times \frac{1 L}{1000 mL}$$

$$\frac{7 \times 236.6}{1000} \quad \boxed{1.6562 L}$$

6) Convert 300 mL into ounces

$$300 mL \times \frac{1 C}{236.6 mL} \times \frac{8 fl oz}{1 C}$$

$$\frac{300 \times 8}{236.6} \quad \boxed{10.14 fl oz}$$

7) Convert 500mL into tbs

$$500 mL \times \frac{1 C}{236.6 mL} \times \frac{16 Tbsp}{1 C}$$

$$\frac{500 \times 16}{236.6} \quad \boxed{33.81 Tbsp}$$

8) Convert 60 litres into gallons

$$60 L \times \frac{1 G}{3.785 L}$$

$$\boxed{15.85 G}$$

9) Convert 7 gallons into fluid ounces (US)

$$7 G \times \frac{4 Q}{1 G} \times \frac{32 Fl oz}{1 Q}$$

$$7 \times 4 \times 32 \quad \boxed{896 fl oz}$$

10) Convert 17 tons (US) into kg

$$17 T \times \frac{2000 lbs}{1 T} \times \frac{1 kg}{2.2 lbs}$$

$$\frac{17 \times 2000}{2.2} \quad \boxed{15454.56 kg}$$

11) Convert 500g into ounces

$$500g \times \frac{1 \text{ oz}}{28.35 \text{ g}}$$

$$\boxed{17.64 \text{ oz}}$$

12) Convert 800 fluid ounces into L

$$800 \text{ floz} \times \frac{1 \text{ q}}{32 \text{ floz}} \times \frac{1 \text{ G}}{4 \text{ q}} \times \frac{3.785 \text{ L}}{1 \text{ G}}$$

$$\frac{800 \times 3.785}{32 \times 4} \quad \boxed{23.66 \text{ L}}$$

13) Convert 50mL into fluid ounces (US)

$$50 \text{ mL} \times \frac{1 \text{ c}}{236.6 \text{ mL}} \times \frac{8 \text{ floz}}{1 \text{ c}}$$

$$\frac{50 \times 8}{236.6} \quad \boxed{1.69 \text{ floz}}$$

14) Convert 800 gallons into fluid ounces

$$800 \text{ gal} \times \frac{4 \text{ q}}{1 \text{ G}} \times \frac{32 \text{ floz}}{1 \text{ q}}$$

$$800 \times 4 \times 32$$

$$\boxed{102400 \text{ floz}}$$

15) Convert 75°F into Celcius

$$C = \frac{5}{9}(F - 32)$$

$$C = \frac{5}{9}(75 - 32)$$

$$C = \frac{5}{9}(43)$$

$$C = \boxed{23.89^\circ \text{C}}$$

16) Convert 42°C into Fahrenheit

$$F = \frac{9}{5}C + 32$$

$$F = \frac{9}{5}(42) + 32$$

$$F = 75.6 + 32$$

$$F = \boxed{107.6^\circ \text{F}}$$

Answers to Assignment 4.1

- 1) 2.5 gallons
- 5) 1.6562 L
- 9) 896 fluid ounces
- 13) 1.69 oz
- 16) 107.6°F

- 2) 2.25 cups
- 6) 10.1 oz
- 10) 15454.5kg
- 14) 102400 fluid ounces

- 3) 21 tsp
- 7) 33.8 tbs
- 11) 17.6 oz
- 15) 23.9°C

- 4) 22.7 kg
- 8) 15.6 gal
- 12) 23.65L

Assignment 4.1

Short Answer

1. A can of diced tomatoes holds 5.5 fl oz. Your recipe calls for 225 mL of diced tomatoes. Will you have enough tomatoes? (Hint: 1 fl oz = 30 mL.)

$$5.5 \times 30 = 165 \text{ mL} \quad \boxed{\text{NO}}$$

2. Which is greater in volume, 6 tablespoons or 100 mL?

$$6 \text{ TBSP} \times \frac{1 \text{ C}}{16 \text{ TBSP}} \times \frac{236.6 \text{ mL}}{1 \text{ C}} = \frac{6 \times 236.6}{16} = 133.09 \text{ mL}$$

6 TBSP IS BIGGER

3. A public pool is kept at a comfortable temperature of 27.9°C. However, the competitive swimming pool beside it is kept at 25.8°C. If you jumped into the colder pool, what temperature change in degrees Fahrenheit would you experience?

$$\begin{array}{r} 27.9 \\ -25.8 \\ \hline 2.1^\circ\text{C} \end{array} \quad F = \frac{9}{5} C \quad F = \frac{9}{5}(2.1) = 3.78^\circ$$

(WE ONLY NEED THE CHANGE WE DON'T NEED TO ADD 32)

4. Before leaving on vacation to Colorado, USA, you check the state's weather forecast. Say time temperatures are predicted to be between 45°F and 55°F for the following week. What range of temperature in degrees Celsius does this represent? Would it make more sense to pack sweaters or T-shirts?

$$C = \frac{5}{9}(F - 32) \quad C = \frac{5}{9}(45 - 32) = 7.22^\circ\text{C}$$

$$C = \frac{5}{9}(55 - 32) = 12.78^\circ\text{C}$$

7.2°C to 12.78°C
I'D BRING A JACKET

5. An American record book lists the coldest temperature ever recorded in North America as -80°F in Snag, YT. What was the temperature in degrees Celsius that day?

$$C = \frac{5}{9}(F - 32) \quad C = \frac{5}{9}(-12) = -6.67^\circ\text{C}$$

$$C = \frac{5}{9}(-80 - 32) = -62.2^\circ\text{C}$$

6. Your favourite gummy candies are being sold for \$3.00 for a package that weighs 12 ounces. Your other option is to buy them in bulk for \$4.32/pound. Which of these choices would be the best deal?

$$12 \text{ oz} \times \frac{1 \text{ lb}}{16 \text{ oz}} = 0.75 \text{ lbs} \times 4.32 = \$3.24$$

BUY THE PACKAGES

7. Farmer Joe's cows eat 0.4 tons of hay every week. If the hay bales cost \$5.25 per 50 pound bale, how much will it cost Joe to feed his cows for a week? He cannot buy partial bales.

$$0.4 \text{ T} \times \frac{2000 \text{ lb}}{1 \text{ T}} = 800 \text{ lbs} \div 50 = 16 \text{ BALES} \times 5.25 = \$84$$

8. A moving truck has a maximum load capacity of 1.1 tons. If you have an inventory of 80 boxes to move and each box weighs 120 lb, how many trips will be required to move the load?

$$\begin{array}{r} 120 \\ \times 80 \\ \hline 9600 \text{ lbs} \end{array} \times \frac{1 \text{ T}}{2000 \text{ lbs}} = 4.8 \text{ T}$$

$$4.8 \text{ T} \div 1.1 = 4.36 \Rightarrow \boxed{5 \text{ TRIPS}}$$

9. Alice is calculating the correct dose of a medicine for her child. The dosage is 3 mg/kg of body weight. If her child weighs 25.2 kg, what is the correct dose?

$$25.2 \times 3 = \boxed{75.6 \text{ mg}}$$

10. To make enough cookies for a fundraiser, a soccer team needs 4 lb of macadamia nuts. The nuts cost \$11.74 for a 800 g bag. How much will it cost the team to buy the nuts? They cannot buy partial bags.

$$4 \text{ lbs} \times \frac{16 \text{ oz}}{1 \text{ lbs}} \times \frac{28.35 \text{ g}}{1 \text{ oz}} = 1814.4 \text{ g} \div 800 = 2.268 \Rightarrow 3 \text{ BAGS} \times 11.74 = \boxed{\$35.22}$$

Problem

1. The gas tank of Rory's car can hold 55 litres of gas.

- a) Rory is travelling in Colorado, USA, and needs to fill up his tank. The cost of gas is \$3.19/gallon. How much will it cost him to fill up, assuming the tank is completely empty?

$$55 \text{ L} \times \frac{1 \text{ gal}}{3.785 \text{ L}} = 14.53 \text{ gal} \times 3.19 = \boxed{\$46.35}$$

- b) If Rory took the same car to England, where gas costs \$8.06/gal, how much would it cost him to fill up the tank?

$$14.53 \times 8.06 = \boxed{\$117.11}$$

2. Gwen is following a recipe for pancakes that calls for 10 cups of flour, $1\frac{1}{4}$ cups of sugar, and 2.5 tsp of baking soda. What will the total volume of the dry goods be in mL if she makes a double batch?

$$10 \text{ c} \times \frac{236 \text{ mL}}{1 \text{ c}} = \boxed{2366 \text{ mL}} \quad 1.25 \text{ c} \times \frac{236 \text{ mL}}{1 \text{ c}} = \boxed{295.75 \text{ mL}} \quad 2.5 \text{ tsp} \times \frac{1 \text{ Tbsp}}{3 \text{ tsp}} \times \frac{1 \text{ c}}{16 \text{ Tbsp}} \times \frac{236 \text{ mL}}{1 \text{ c}} = \boxed{12.32 \text{ mL}}$$

3. An elevator has a maximum capacity of 1350 lb. Billy weighs 165 lb and he has 30 pallets of paper to deliver in the building. Each pallet weighs 80 kg.

- a) What is the capacity of the elevator in kilograms? $1350 \text{ lbs} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} = \boxed{613.6 \text{ kg}}$

- b) If Billy always rides the elevator with his paper deliveries, how much remaining capacity does the elevator have in kilograms?

$$165 \text{ lb} \times \frac{1 \text{ kg}}{2.2 \text{ lb}} = 75 \text{ kg} \quad 613.6 - 75 = \boxed{538.6 \text{ kg}}$$

- c) How many pallets at a time can Billy load into the elevator? He cannot load partial pallets.

- d) How many trips will Billy make to deliver all the paper?

$$\frac{30 \text{ pallets}}{6 \text{ pallets}} = \boxed{5 \text{ trips}}$$

$$\frac{538.6}{80} = 6.73 \Rightarrow \boxed{6 \text{ pallets}}$$

$$12.32 \text{ mL} \text{ BAKING SODA}$$

$$12.32 + 295.75 + 2366.00 = \boxed{2674.07 \text{ mL}}$$

1. $165 < 225$ not enough 2. $100 \text{ mL} > 88.7 \text{ mL}$ 3. 3.8F 4. 7.2-12.7C Sweater 5. -62.2C 6. $\$0.25/\text{oz} < \$0.27/\text{oz}$ package is better 7. \$84 8. 5 trips 9. 75.6mg 10. \$35.22 Problems 1a. \$45.62, b. \$96.05 2. 5650mL 3a. 613.6kg b. 538.6kg c. 6 pallets d. 5