

Worksheet 10A

NAME KeyEQUIVALENT QUANTITIES, UNIT FRACTIONS,
AND FACTOR-LABELING

PERIOD _____

PART 1

COMPLETE THE FOLLOWING EQUIVALENT QUANTITIES AND THEN WRITE EACH ONE AS TWO DIFFERENT UNIT FRACTIONS.

1. 3 feet = 1 yard

$$\frac{3\text{ft}}{1\text{yard}}$$

$$\frac{1\text{yard}}{3\text{ft}}$$

2. 1000 meters = 1 kilometers

$$\frac{1000\text{m}}{1\text{Km}}$$

$$\frac{1\text{Km}}{1000\text{m}}$$

3. 16 ounces = 1 pound

$$\frac{1\text{lb}}{16\text{ounces}}$$

$$\frac{16\text{ounces}}{1\text{lb}}$$

4. 1 gallon = 4 quarts

$$\frac{4\text{qt}}{1\text{gal}}$$

$$\frac{1\text{gal}}{4\text{qt}}$$

5. 2.54 cm = 1 inches

$$\frac{2.54\text{cm}}{1\text{in}}$$

$$\frac{1\text{in}}{2.54\text{cm}}$$

6. 5280 feet = 1 mile

$$\frac{5280\text{ft}}{1\text{mile}}$$

$$\frac{1\text{mile}}{5280\text{ft}}$$

7. 1000 milligrams = 1 gram

$$\frac{1\text{g}}{1000\text{mg}}$$

$$\frac{1000\text{mg}}{1\text{g}}$$

8. 2.2 pounds = 1 kilograms

$$\frac{2.2\text{lb}}{1\text{Kg}}$$

$$\frac{1\text{Kg}}{2.2\text{lb}}$$

9. 454 grams = 1 pounds

$$\frac{1\text{lb}}{454\text{g}}$$

$$\frac{454\text{g}}{1\text{lb}}$$

10. 2 pints = 1 quart

$$\frac{2\text{pints}}{1\text{qt}}$$

$$\frac{1\text{qt}}{2\text{pints}}$$

11. 1000 milliliters = 1 liters

$$\frac{1\text{L}}{1000\text{ml}}$$

$$\frac{1000\text{ml}}{1\text{L}}$$

12. 60 seconds = 1 minutes

$$\frac{1\text{min}}{60\text{sec}}$$

$$\frac{60\text{sec}}{1\text{min}}$$

13. 1 milliliter = 1 cubic centimeters

page 1

$$\frac{1\text{ml}}{1\text{cm}^3}$$

$$\frac{1\text{cm}^3}{1\text{ml}}$$

PART 2

USING ONLY UNIT FRACTIONS, CONVERT THE FOLLOWING QUANTITIES. SHOW ALL LABELING AND CANCELLATION. NO CREDIT WILL BE GIVEN WITHOUT THE LABELS AND CANCELLATION SHOWN. BE SURE TO LABEL THE ANSWERS.

14. Convert 4 gallons to quarts.
 $4 \text{ gal} = ? \text{ qts}$
 $4 \text{ qts} = 1 \text{ gal}$
 $\left(\frac{4 \text{ gal}}{1}\right) \left(\frac{4 \text{ qts}}{1 \text{ gal}}\right) = 16 \text{ qts} = \boxed{20 \text{ qts}}$
15. Convert 5045 grams to pounds.
 $5045 \text{ g} = ? \text{ lb}$
 $454 \text{ g} = 1 \text{ lb}$
 $\left(\frac{5045 \text{ g}}{1}\right) \left(\frac{1 \text{ lb}}{454 \text{ g}}\right) = \boxed{11.11 \text{ lb}}$
16. Convert 25 quarts to pints.
 $25 \text{ qts} = ? \text{ pts}$
 $2 \text{ pts} = 1 \text{ qt}$
 $\left(\frac{25 \text{ qts}}{1}\right) \left(\frac{2 \text{ pts}}{1 \text{ qt}}\right) = \boxed{50 \text{ pts}}$
17. Convert 4.8 minutes to seconds.
 $4.8 \text{ min} = ? \text{ sec}$
 $1 \text{ min} = 60 \text{ sec}$
 $\left(\frac{4.8 \text{ min}}{1}\right) \left(\frac{60 \text{ sec}}{1 \text{ min}}\right) = \boxed{290 \text{ sec}}$
18. Convert 3.9 kilograms to grams.
 $3.9 \text{ kg} = ? \text{ g}$
 $1000 \text{ g} = 1 \text{ kg}$
 $\left(\frac{3.9 \text{ kg}}{1}\right) \left(\frac{1000 \text{ g}}{1 \text{ kg}}\right) = \boxed{3900 \text{ g}}$
19. Convert 452 milliliters to liters.
 $452 \text{ ml} = ? \text{ l}$
 $1000 \text{ ml} = 1 \text{ l}$
 $\left(\frac{452 \text{ ml}}{1}\right) \left(\frac{1 \text{ l}}{1000 \text{ ml}}\right) = \boxed{.452 \text{ l}}$
20. Convert .0054 kilometers to meters.
 $.0054 \text{ km} = ? \text{ m}$
 $1000 \text{ m} = 1 \text{ km}$
 $\left(\frac{.0054 \text{ km}}{1}\right) \left(\frac{1000 \text{ m}}{1 \text{ km}}\right) = \boxed{5.4 \text{ m}}$
21. Convert 2.6 liters to milliliters.
 $2.6 \text{ l} = ? \text{ ml}$
 $1 \text{ l} = 1000 \text{ ml}$
 $\left(\frac{2.6 \text{ l}}{1}\right) \left(\frac{1000 \text{ ml}}{1 \text{ l}}\right) = \boxed{2600 \text{ ml}}$
22. Convert 4.4 kilograms to pounds.
 $4.4 \text{ kg} = ? \text{ lb}$
 $2.2 \text{ lb} = 1 \text{ kg}$
 $\left(\frac{4.4 \text{ kg}}{1}\right) \left(\frac{2.2 \text{ lb}}{1 \text{ kg}}\right) = \boxed{9.7 \text{ lb}}$
23. Convert 2000 seconds to hours.
 $2000 \text{ sec} = ? \text{ hrs}$
 $1 \text{ hr} = 60 \text{ min}$ $1 \text{ min} = 60 \text{ sec}$
 $\left(\frac{2000 \text{ sec}}{1}\right) \left(\frac{1 \text{ min}}{60 \text{ sec}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) = \boxed{.6 \text{ hr}}$
24. Convert 600 gal/hour to gal/minute
 $600 \text{ gal/hr} = ? \text{ gal/min}$
 $1 \text{ hr} = 60 \text{ min}$
 $\left(\frac{600 \text{ gal}}{\text{hr}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) = \boxed{10 \text{ gal/min}}$
25. Convert 55 mi/hour to feet/second
 $55 \text{ mi/hr} = ? \text{ ft/sec}$
 $1 \text{ mile} = 5280 \text{ ft}$ $1 \text{ hr} = 60 \text{ min}$ $1 \text{ min} = 60 \text{ sec}$
 $\left(\frac{55 \text{ mi}}{\text{hr}}\right) \left(\frac{5280 \text{ ft}}{1 \text{ mi}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) \left(\frac{1 \text{ min}}{60 \text{ sec}}\right) = \boxed{81 \text{ ft/sec}}$
26. Convert \$4.50/hour to dollars/minute
 $\$4.50/\text{hr} = ? \text{ \$/min}$
 $1 \text{ hr} = 60 \text{ min}$
 $\left(\frac{\$4.50}{\text{hr}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) = \boxed{\$.0750/\text{min}}$
27. Convert 12 000 millimeters/hour to kilometers/second
 $12000 \text{ mm/hr} = ? \text{ km/sec}$
 $1000 \text{ mm} = 1 \text{ m}$ $1 \text{ hr} = 60 \text{ min}$
 $1000 \text{ m} = 1 \text{ km}$ $1 \text{ min} = 60 \text{ sec}$
 $\left(\frac{12000 \text{ mm}}{\text{hr}}\right) \left(\frac{1 \text{ m}}{1000 \text{ mm}}\right) \left(\frac{1 \text{ km}}{1000 \text{ m}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) \left(\frac{1 \text{ min}}{60 \text{ sec}}\right) = \boxed{3.3 \times 10^{-6} \text{ km/sec}}$