

## Equivalent Rates (Conversions)

Rate: *a ratio of two quantities measured in different units.*

Equivalent Rate: *Ratios of different units of measure that have the same value.*

### Customary Units of Length

- 1 foot (ft) = 12 inches (in)
- 1 yard (yd) = 3 feet (ft)
- 1 yard (yd) = 36 inches (in)
- 1 mile (mi) = 1,760 yards (yd)
- 1 mile (mi) = 5,280 feet (ft)



*conversion factors - highlight it*

### Writing an Equivalent Rate

1. A jet flies 540 miles per hour. Find the rate in miles per minute.

$$\frac{540 \text{ miles}}{1 \text{ hour}} * \frac{1 \text{ hour}}{60 \text{ mins}} = \frac{9 \text{ miles}}{1 \text{ minute}}$$

*one*

1 cm = 100 mm

1 meter = 100 cm

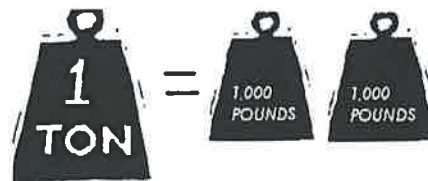
1 km = 1000 meters

2.  $\frac{5 \text{ cm}}{1 \text{ min}} = \frac{? \text{ meters}}{1 \text{ hour}}$

$$\frac{5 \text{ cm}}{1 \text{ min}} * \frac{60 \text{ min}}{1 \text{ hour}} * \frac{1 \text{ meter}}{100 \text{ cm}} = \frac{3 \text{ meters}}{1 \text{ hour}}$$

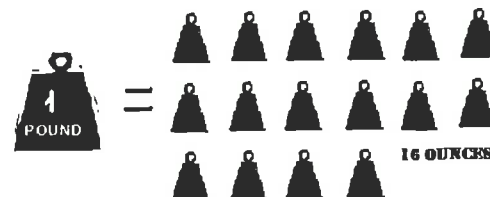
3.  $\frac{3 \text{ lb}}{\$1} = \frac{? \text{ oz}}{\$1}$

$$\frac{3 \text{ lbs}}{\$1} * \frac{16 \text{ oz}}{1 \text{ lb}} = \frac{48 \text{ oz}}{\$1}$$



4.  $\frac{4 \text{ quarts}}{1 \text{ hour}} = \frac{? \text{ cups}}{1 \text{ hour}}$

$$\frac{4 \text{ qts.}}{1 \text{ hour}} * \frac{4 \text{ cups}}{1 \text{ qt}} = \frac{16 \text{ cups}}{1 \text{ hour}}$$



$$5. \frac{72 \text{ inches}}{1 \text{ minute}} = \frac{? \text{ feet}}{1 \text{ minute}}$$

$$\frac{72 \text{ inches}}{1 \text{ minute}} * \frac{1 \text{ ft}}{12 \text{ inches}} = \frac{6 \text{ feet}}{1 \text{ minute}}$$

$$6. \frac{1250 \text{ lbs}}{50 \text{ people}} = \frac{? \text{ ounces}}{1 \text{ person}}$$

$$\frac{1250 \text{ lbs}}{50 \text{ people}} * \frac{16 \text{ oz}}{1 \text{ lb}} = \frac{400 \text{ oz}}{1 \text{ person}}$$

$$7. \frac{400 \text{ candies}}{1 \text{ pounds}} = \frac{? \text{ candies}}{1 \text{ ounce}}$$

$$\frac{400 \text{ candies}}{1 \text{ pound}} * \frac{1 \text{ lb}}{16 \text{ oz}} = \frac{25 \text{ candies}}{1 \text{ Ounce}}$$

$$8. \frac{6510 \text{ kg}}{15 \text{ boxes}} = \frac{? \text{ grams}}{1 \text{ box}}$$

$$\frac{6510 \text{ kg}}{15 \text{ boxes}} * \frac{1000 \text{ grams}}{1 \text{ Kilogram}} = \frac{434,000 \text{ grams}}{1 \text{ box}}$$

$$9. \frac{64 \text{ ounces}}{1 \text{ day}} = \frac{? \text{ pints}}{1 \text{ day}}$$

$$\frac{64 \text{ ounces}}{1 \text{ day}} * \frac{1 \text{ cup}}{8 \text{ oz}} * \frac{1 \text{ pt}}{2 \text{ cups}} = \frac{4 \text{ pts}}{1 \text{ day}}$$

$$10. \frac{8,400,000 \text{ pounds}}{4 \text{ ships}} = \frac{? \text{ tons}}{1 \text{ ship}}$$

$$\frac{8,400,000 \text{ pounds}}{4 \text{ ships}} * \frac{1 \text{ ton}}{2000 \text{ lbs}} = \frac{1050 \text{ tons}}{1 \text{ ship}}$$

$$11. \frac{6 \text{ gallons}}{1 \text{ hour}} = \frac{? \text{ quarts}}{1 \text{ minute}}$$

$$\frac{6 \text{ gallons}}{1 \text{ hour}} * \frac{4 \text{ Qts}}{1 \text{ gallon}} * \frac{1 \text{ hour}}{60 \text{ mins}} = \frac{2 \text{ Qts}}{5 \text{ min}} = \frac{.4 \text{ Qts}}{1 \text{ min}}$$

$$12. \frac{30 \text{ minutes}}{12 \text{ feet}} = \frac{? \text{ minutes}}{1 \text{ yard}}$$

$$\frac{30 \text{ mins}}{12 \text{ feet}} * \frac{3 \text{ feet}}{1 \text{ yard}} = \frac{7.5 \text{ mins}}{1 \text{ yard}}$$

2 conversions