January 30, 2015

5th
6th

Starter

Simplify each complete

1. $2x - 7 + 5x$

$= 7x - 7$

2. $-1n + 8 - 1n - 5$

$= -2n + 3$

3. $4c - 1c + 12 - 9$

$= 3c + 3$

4. $-3v - 10 + 15 + 7v$

$= 4v + 5$

1/30 - Converting between Units

First you need to understand UNIT FRACTIONS.

Definition: a *unit fraction* is a fraction where the numerator and the denominator are the same size but may be different units.

Examples: $\frac{1\text{ ft}}{12\text{ in}}$ $\frac{60\text{ min}}{1\text{ hr}}$ $\frac{1\text{ gal}}{4\text{ qts}}$

Convert 13 feet to inches using unit fractions.

$$13\,feet = \frac{13\,ft}{1}$$

$$= \frac{13\,ft}{1} \cdot 1$$

$$= \frac{13\,ft}{1} \cdot (any\ unit\ fraction)$$

$$= \frac{13\,ft}{1} \cdot \frac{any\ number}{itself}$$

$$= \frac{13\,\cancel{ft}}{1} \cdot \frac{12\,in}{1\,\cancel{ft}}$$

$= 156\,in$

$1\,ft = 12\,in$

$\frac{1\,ft}{12\,in}$ or $\frac{12\,in}{1\,ft}$

Convert one unit to the other by using unit fractions.

1 ft = 12 in

$2\frac{1}{2}$ ft = _____ in

$\frac{5 \text{ ft}}{2} \cdot \frac{12 \text{ in}}{1 \text{ ft}}$

$= 30$ in

$7\frac{3}{4}$ in = _____ ft

$\frac{31 \text{ in}}{4} \cdot \frac{1 \text{ ft}}{12 \text{ in}}$

$= \frac{31}{48}$ ft

1 ft = 12 in

$1\frac{1}{4}$ hours = _____ min

$\frac{5 \text{ hr}}{4} \cdot \frac{60 \text{ min}}{1 \text{ hr}}$

$= 75$ min

1 hr = 60 mn

$1\frac{1}{2}$ pints = _____ quarts

$\frac{3 \text{ pt}}{2} \cdot \frac{1 \text{ qt}}{2 \text{ pt}}$

$= \frac{3}{4}$ qts

2 pt = 1 qt

Convert 60 miles per houto miles per minutusinc unit fractions

$$60\ mph = \frac{60\ miles}{}$$

Convert each unit rate using unit fractions.

20 mph = _____ ft/hr

$$\frac{20\ \text{mi}}{1\ \text{hr}} \cdot \frac{5280\ \text{ft}}{1\ \text{mi}} = 105{,}600\ \text{ft/hr}$$

5280 ft = 1 mi

20 mph = _____ miles/minute

$$\frac{20\ \text{mi}}{1\ \text{hr}} \cdot \frac{1\ \text{hr}}{60\ \text{min}} = \frac{1}{3}\ \text{mi/min}$$

1 hr = 60 min

20 gal/min = _____ gal/hr

$$\frac{20\ \text{gal}}{1\ \text{min}} \cdot \frac{60\ \text{min}}{1\ \text{hr}} = 1200\ \text{gal/hr}$$

1 hr = 60 min

15 miles/gal = _____ miles/quart

$$\frac{15\ \text{mi}}{1\ \text{gal}} \cdot \frac{1\ \text{gal}}{4\ \text{qt}} = \frac{15}{4}\ \text{mi/qt} = 3\frac{3}{4}\ \text{mi/qt} = 3.75\ \text{mi/qt}$$

4 qt = 1 gal

Homework

Green WS6

Due Tuesday