

Lesson 3: Basic Measurement Systems and Conversions

Are You Ready? Possible Answers

1. The following is the rule for multiplying fractions:

- Convert any mixed fractions into improper fractions.
- Multiply numerators together.
- Multiply denominators together.
- Reduce product to lowest terms.

2. a. $\frac{1 \times 3}{2 \times 4} = \frac{3}{8}$

b. $\frac{2 \times 6}{3 \times 5} = \frac{12}{15} = \frac{4}{5}$

c. $\frac{3 \times 2}{4 \times 1} = \frac{6}{4} = \frac{3}{2}$

d.

$$\frac{1 \times 2 \times 3}{2 \times 3 \times 5} = \frac{6}{30} = \frac{1}{5}$$

or

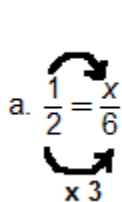
$$\frac{1 \times 2 \times 3}{2 \times 3 \times 5} \text{ reduce the 2 and 3 top and bottom}$$

$$= \frac{1}{5}$$

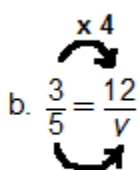
3. Two fractions are equivalent if they are identical when reduced to lowest terms.

4. For a through c, we can use equivalent fractions and get

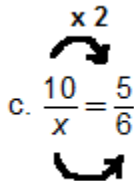
a. $\frac{1}{2} = \frac{x}{6}$



b. $\frac{3}{5} = \frac{12}{y}$



c. $\frac{10}{x} = \frac{5}{6}$



- a. So since the denominator is multiplied by 3, we multiply the numerator by 3 and get $x = 3$. The same process for b and c yields
- b. $y = 20$
- c. $x = 12$

For d, the process of cross multiplication can be used and we get

d. $\frac{9}{6} = \frac{12}{y}$

$$9y = 72$$

Divide both sides by 9

$$\frac{9y}{9} = \frac{72}{9}$$

$$y = 8$$

5. a. 100 cm
b. 10 mm
c. 1000 m
d. 12 in
e. 3 ft