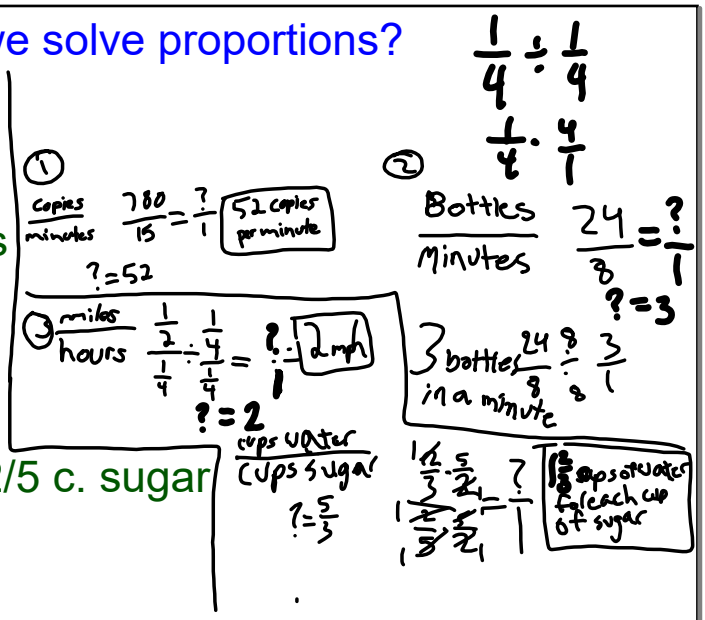
6th grade FM: How do we solve proportions?

Warm-up:

Find the unit rate:

1. 780 copies in 15 minutes
2. 24 bottles in 8 minutes
3. 1/2 miles in 1/4 hour
4. 2/3 cups water for each 2/5 c. sugar



How do we solve proportions?

A proportion is an equation that states two ratios are equivalent.

$$\frac{a}{b} = \frac{c}{d}$$

To solve a proportion:

1. Simplify your original ratio ✱
2. Multiply or divide by 1 to find a new ratio

Ex 1: $\frac{5}{6} = \frac{x}{18}$ (×3)

$x = 15$

Ex 2: $\frac{m}{2} = \frac{20}{10}$ (÷5)

$m = 4$

Ex 3: $\frac{c}{12} = \frac{2}{8}$

$\frac{c}{12} = \frac{1}{4}$ (×3)

$c = 3$

Ex 4: $\frac{16}{18} = \frac{80}{k}$ (×5)

$k = 90$

$\frac{8}{9} = \frac{80}{K}$ (×10)

$K = 90$

Ex 5: Mr. Thomas' class has 3 girls for every 4 boys. If his class has 16 boys, how many girls does it have?

$\frac{\text{girls}}{\text{boys}}$ $\frac{3}{4} = \frac{g}{16}$ (×4)

g = # of girls $g = 12$

Mr. Thomas' class has 12 girls.

Ex 6: A machine makes toy cars at the rate of 120 cars per hour. How many toy cars will it make in 8 minutes?

$\frac{8}{60}$ of hour

$\frac{\text{cars}}{\cancel{\text{hours}}\ \text{minutes}}$ $\frac{120}{\div 60} = \frac{C}{8}$

C = # of toy cars

$\frac{2}{1} \overset{(8)}{=} \frac{C}{8}$ (8)

$C = 16$

The machine can make 16 toy cars in 8 minutes.