

Day 2: Proportions

1. Describe and correct the error in the proportion below to solve the following problem: To make green eggs and ham, 3 drops of blue food coloring is mixed with 4 drops of yellow food coloring. Find the number b of blue drops to add to 18 drops of yellow.

$$\begin{array}{l} \text{blue } 3 \\ \text{yellow } 4 \end{array} = \frac{18 \text{ yellow}}{b \text{ blue}}$$

<p>What is the error?</p> <p>Must match top to top and bottom to bottom. So, blue to blue and yellow to yellow.</p>	<p>Let's fix it...</p> $\frac{3 \text{ blue}}{4 \text{ yellow}} = \frac{\text{blue}}{18 \text{ yellow}}$
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2. The ratio of Isabella's money to Shane's money is 3:1. If Isabella has \$33, how much do they have together? Solve this problem ~~and then create a SECOND proportion you could use to solve.~~

$$\begin{array}{l} 3 \text{ Isabella} \\ 11 \text{ Shane} \end{array} \quad \times \quad \begin{array}{l} \$33 \text{ Isabella} \\ 'x' \text{ Shane} \end{array}$$

$$3 \cdot x = 33 \cdot 11$$

$$\frac{3x}{3} = \frac{363}{3}$$

$$x = \$121 \text{ Shane}$$

Together =

$$\begin{array}{r} \$33 \text{ Isabella} \\ + \$121 \text{ Shane} \\ \hline \end{array}$$

\$154 Together

3. Mrs. Petersen and Mrs. Dombrowski were folding report cards to send home to parents. The ratio of reports that Mrs. Petersen folded to Mrs. Dombrowski was 2:3. By the end of the day, they had folded 255 report cards. How many did each person fold? total

↳ break into two proportions / steps

② Mrs. P
3 Mrs. D

↓

2+3=5

①

$$\frac{2 \text{ Mrs. P}}{5 \text{ Total}} = \frac{'x' \text{ Mrs. P}}{255 \text{ Total}}$$

$$2 \cdot 255 = 5 \cdot x$$

$$\frac{510}{5} = \frac{5x}{5}$$

MRS. P 102 = x

②

$$\begin{array}{r} \text{MRS. D} = \\ 255 \text{ Total} \\ - 102 \text{ MRS. P} \\ \hline \end{array}$$

153 MRS. D

4. The ratio of men to women working at Allatoona is 2:9. Thirty men work at Allatoona. In all how many people work there?

$$\frac{2 \text{ men}}{9 \text{ women}}$$

$$\downarrow$$

$$2+9=11$$

$$\frac{2 \text{ men}}{11 \text{ total}} \times \frac{30 \text{ men}}{(x) \text{ total}}$$

$$11 \cdot 30 = 2 \cdot x$$

$$\frac{330}{2} = \frac{2x}{2} \quad \boxed{x = 165 \text{ total}}$$

use the info. for men to get to your answer

5. The ratio of domestic cars to imported cars in the lot at Al's Auto Shop is 3:2. There are 42 domestic cars in the shop. How many cars are there all together?

$$\frac{3 \text{ domestic}}{2 \text{ imported}}$$

$$\downarrow$$

$$3+2=5$$

$$\frac{3 \text{ domestic}}{5 \text{ total}} \times \frac{42 \text{ domestic}}{(x) \text{ total}}$$

$$5 \cdot 42 = 3 \cdot x$$

$$210 = 3x$$

$$\boxed{x = 70 \text{ total}}$$

use the info. for domestic to get your answer

6. In a recent survey, 7 out of 10 people prefer coffee in the morning. The rest said they prefer tea. If 27 people said they prefer tea, how many people were interviewed?

$$\frac{3 \text{ prefer tea}}{10 \text{ total}} \times \frac{27 \text{ prefer tea}}{(x) \text{ total}}$$

$$10 \cdot 27 = 3 \cdot x$$

$$\frac{270}{3} = \frac{3x}{3}$$

$$\boxed{x = 90 \text{ total}}$$

$$\hookrightarrow 10 - 7 = 3 \uparrow$$

7. Abbie spent $\frac{5}{8}$ of her money and saved the rest. If she spent \$45, how much money did she have at first?

$$\frac{\$5 \text{ spent}}{\$8 \text{ total}} \times \frac{\$45 \text{ spent}}{(x) \text{ total}}$$

$$8 \cdot 45 = 5 \cdot x$$

$$360 = 5x$$

$$\boxed{\$72 = x}$$