

Proportions

ratio - comparison of 2 #'s by division

4 ways
to write

5:6	$\frac{5}{6}$
5 to 6	5 out of 6

proportions - equation that shows 2
= ratios (looks like
equivalent frac.)

Ex $\frac{5}{10} = \frac{1}{2}$

Determine if each pair of ratios form a proportion.

1) $\frac{3}{8}, \frac{8}{24}$ not = so
not prop.

$$\frac{3 \cdot 3}{8 \cdot 3} = \frac{9}{24}$$

*Equivalent frac.
don't always work

OR

CROSS
MULT.

$$3 \cdot 24 \quad 8 \cdot 8$$

$$72 \neq 64$$

NO

* This way works
EVERY time

2) $\frac{5}{6}$, $\frac{40}{48}$ → look @ frac. separately & simplify if can

$$\frac{5}{6} = \frac{5}{6}$$

yes

$$\frac{0.7}{5} \mid 3.5$$

$$\frac{0.7}{2} \mid 1.4$$

3) $\frac{3.5}{5}$ $\frac{1.4}{2}$

→ 2×3.5 5×1.4 ←

$$7 = 7.0$$

yes

OR

$$\frac{3.5}{5}$$

$$\frac{1.4}{2}$$

$$0.7 = 0.7$$

yes

Solve proportions.

$$1) \frac{c}{35} = \frac{3}{7}$$

$$c = 15$$

works
sometimes

OR

$$\frac{c}{35} = \frac{3}{7}$$

$$7c = 35 \cdot 3$$

$$7c = 105$$

$$c = 15$$

1st cross
mult.

2nd divide

$$\begin{array}{r} 15 \\ 7 \overline{) 105} \\ \underline{-71} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

ALWAYS works

$$2) \quad \frac{10 \div 2}{8.4 \div 2} = \frac{5}{d}$$

$$\frac{4.2}{2 \overline{)8.4}}$$

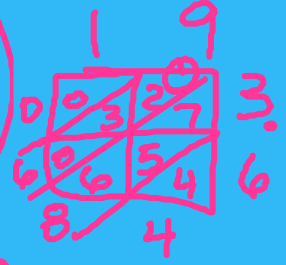
$$\boxed{4.2 = d}$$

$$3) \quad \frac{95}{3.6} \times \frac{19}{n}$$

$$95n = 19 \times 3.6$$

$$95n = \frac{68.4}{95}$$

$$\boxed{n = 0.72}$$



OR

$$\frac{95 \div 5}{3.6 \div 5} = \frac{19}{n}$$

$$\boxed{0.72 = n}$$

$$\begin{array}{r} 0.72 \\ 95 \overline{)68.40} \\ \underline{-665} \\ 190 \\ \underline{-190} \\ 0 \end{array}$$

$$\begin{array}{r} 0.72 \\ 5 \overline{)3.60} \\ \underline{-35} \\ 10 \\ \underline{-10} \\ 0 \end{array}$$

$$4) \begin{array}{cc} \frac{1.4}{1.8} & \frac{3.5}{w} \\ \downarrow & \downarrow \\ 1.4w = 1.8(3.5) \end{array}$$

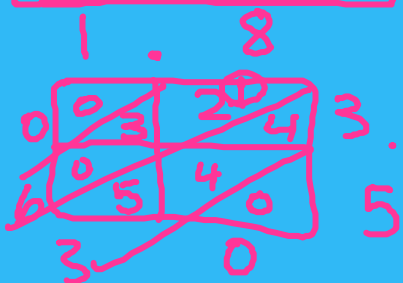
$$5) \frac{23^{0.5}}{20.5} = \frac{115}{m}$$

$$23 \overline{) 115} \begin{array}{r} 5 \\ -115 \\ \hline 0 \end{array}$$

$$100 = m$$

$$\frac{1.4w}{1.4} = \frac{6.3}{1.4}$$

$$w = 4.5$$



$$1.4 \overline{) 6.30} \begin{array}{r} 04.5 \\ \underline{56} \\ 70 \\ \underline{-70} \\ \hline 0 \end{array}$$

$$6) \frac{25}{n} = \frac{12}{48} \rightarrow \text{simplify}$$

$$\frac{25}{n} = \frac{1}{4}$$

$$n = 100$$

7) 3 pounds for \$1.50
x pounds for \$4.50

$$\frac{\text{lbs}}{\$} \quad \frac{3}{\$1.50} = \frac{x}{\$4.50}$$

8) 2.7L at m dollars
3L at \$7.00

$$\frac{\text{L}}{\text{\$}} \quad \frac{2.7}{m} = \frac{3}{\$7} \quad \text{OR} \quad \frac{\text{\$}}{\text{L}} \quad \frac{m}{2.7} = \frac{\$7}{3}$$

9) A recipe calls for $4\frac{1}{2}$ cups of flour for 72 cookies. How much flour is needed for 48 cookies?

$$\frac{\text{flour}}{\text{cookies}} \quad \frac{4.5}{72} = \frac{f}{48}$$