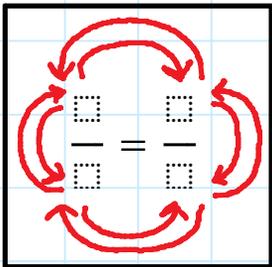


M8 - 2.1 - Equal Fraction Notes

Over = Over

$$\frac{\square}{\square} = \frac{\square}{\square}$$

Do to Top/Do to Bottom
Do to Left/Do to Right



One over two equals what over 4?

$$\frac{1}{2} = \frac{?}{4}$$

→

$$\frac{1}{2} = \frac{2}{4}$$

Multiply bottom by 2
Multiply top by 2

$? = 2$ $1 \times 2 = 2$

One over three equals what over 6?

Set it up!

$$\frac{1}{3} = \frac{x}{6}$$

$x = 1 \times 2 = 2$

$x = 2$

? or x
Does it matter
No!

Direction Matters

$$\frac{1}{2} = \frac{2}{4}$$

Multiply in one direction
Divide in other direction

$$\frac{1}{2} = \frac{2}{4}$$

Multiply left by 2
Multiply right by 2

$$\frac{1}{2} = \frac{x}{4}$$

Get an LCD!

$$\frac{2 \times 1}{2 \times 2} = \frac{x}{4}$$

$x = 2$

LCD

Five over twenty equals one over what?

I'm not afraid to work on the bottom of the fraction!

$$\frac{5}{20} = \frac{1}{x}$$

→

$$\frac{5}{20} = \frac{1}{4}$$

→ $x = 4$

Divide top by 5
Divide bottom by 5

$20 \div 5 = 4$

Ratios Too!

$$\frac{1}{2} = \frac{2}{4}$$

Same Rules!

Three over five equals what over twelve?

$$\frac{3}{5} = \frac{x}{12}$$

→

$$\frac{3}{5} = \frac{7.2}{12}$$

→ $x = 7.2$

Multiply bottom by 2.4
Multiply top by 2.4

$3 \times 2.4 = 7.2$

$\frac{12}{5} = 2.4$

If you don't know just divide!
Bigger divided by Smaller!

$x = 7.2$

OR!

$$\frac{3}{5} = \frac{x}{12}$$

→ $x = 7.2$

Multiply left in down by 2
Divide right in up by 2

$\frac{5}{3} = 1.\bar{6}$

Calculator $1.\bar{6} = 1.666666...$

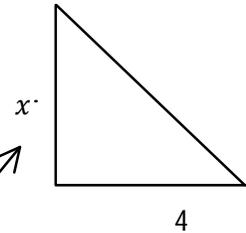
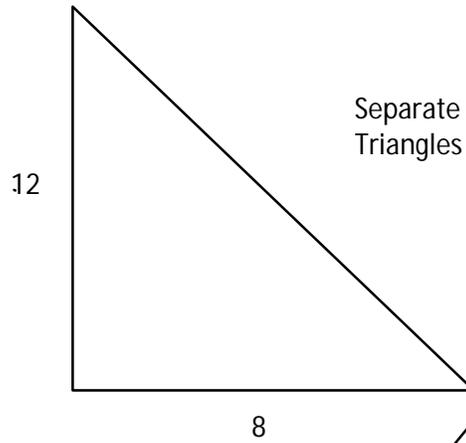
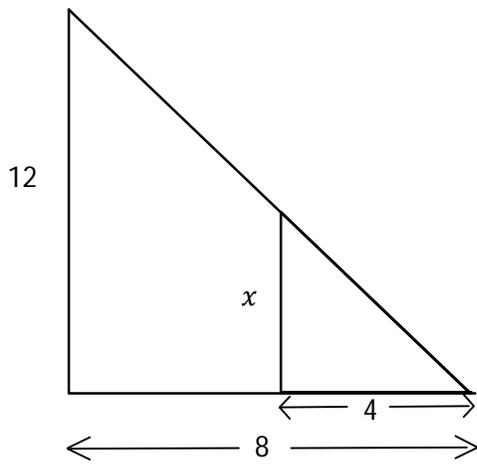
Bottom goes into Top

Bottom | Top

$$\begin{array}{r} 2.4 \\ 5 \overline{) 12.0} \\ \underline{- 10} \\ 20 \\ \underline{- 20} \\ 0 \end{array}$$

$$\begin{array}{r} 1.66... \\ 3 \overline{) 5.00} \\ \underline{- 3} \\ 20 \\ \underline{- 18} \\ 20 \text{ (Repeat)} \end{array}$$

M8 - 2.2 - Similar Shapes Notes



12: x
8: 4
Ratios

Variable on top!

× 1.5

$$\frac{x}{12} = \frac{4}{8}$$

× 1.5

Equal Fractions

$$4 \times 1.5 = 6$$

$x = 6$

$$12 \div 8 = 1.5$$

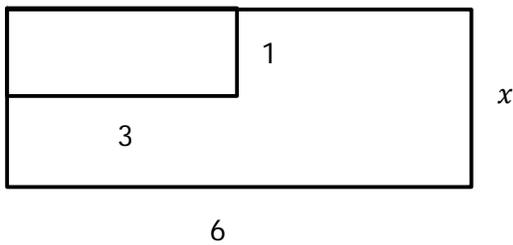
$$\frac{BIGGER}{SMALLER} = \frac{bigger}{smaller}$$

$$\frac{x}{12} = \frac{4}{8}$$

$$12 \times \frac{x}{12} = \frac{4}{8} \times 12$$

$x = 6$

Algebra



$$6 \div 3 = 2$$

$x = 2$

$$\times 3 \quad \frac{1}{3} = \frac{x}{6} \quad \div 3$$

$$\frac{smaller}{bigger} = \frac{SMALLER}{BIGGER}$$

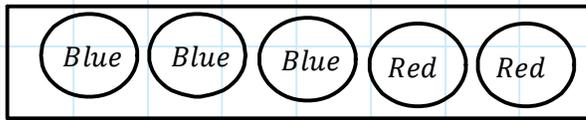
$$\frac{6}{3} = \frac{x}{1}$$

$x = 2$

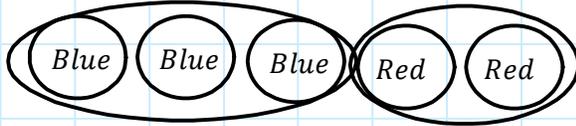
$$\frac{BIGGER}{bigger} = \frac{SMALLER}{smaller}$$

M8 - 2.7 - Ratios Marbles Notes

You have 3 Blue marbles and 2 Red marbles in a box, a total 5 marbles.



What is the ratio of blue to red marbles?



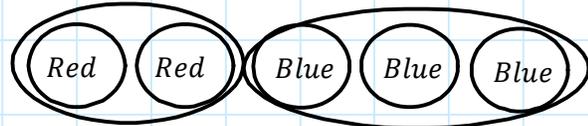
$$\begin{matrix} b : r \\ 3 : 2 \end{matrix}$$

3 Blue : 2 Red

$$3:2$$

Part to Part

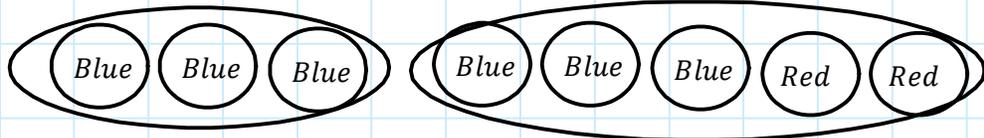
What is the ratio of red to blue marbles?



2 Red : 3 Blue

$$2:3$$

What is the ratio of blue marbles to total marbles?



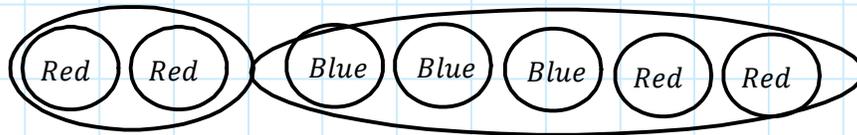
3 Blue : 5 Total

$$3:5$$

Part to Total

$$\begin{matrix} r : b : T \\ 2 : 3 : 5 \end{matrix}$$

What is the ratio of red marbles to total marbles?



2 Red : 5 Total

$$2:5$$

If a larger box has 9 Blue marbles in the same ratio as above how many Red marbles and Total marbles are in the box?

$$\times 3 \begin{matrix} \curvearrowleft 3 \text{ Blue} : 2 \text{ Red} \\ \curvearrowright 9 : \text{Blue} : ? \text{ Red} \end{matrix} \times 3$$

$$9 \text{ Blue} + 6 \text{ Red} = 15 \text{ Marbles}$$

$$2 \times 3 = 6$$

6 Red Marbles

There are 15 marbles in the larger box

If a larger box has 25 marbles in the same ratio as above how many Red marbles are in the box?