

Four rules with fractions

1 Work out the missing total.

| | | | | |
|---------------|---------------|---------------|---------------|----------------|
| $\frac{2}{3}$ | $\frac{2}{3}$ | $\frac{2}{3}$ | $\frac{2}{3}$ | $2\frac{1}{3}$ |
| 5 | | | | |

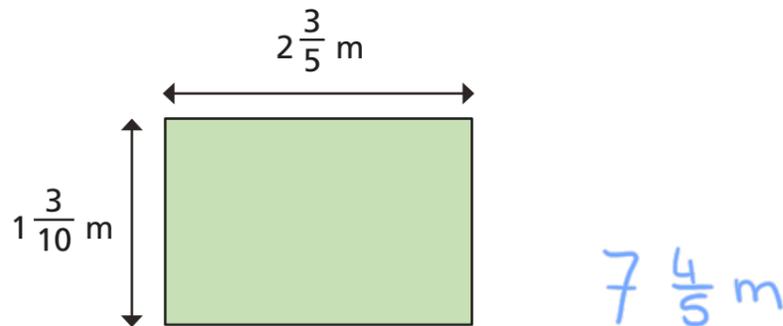
Show all the steps in your working.

$$\frac{2}{3} \times 3 = 2$$

$$\frac{2}{3} + 2\frac{1}{3} = 3 \quad 2 + 3 = 5$$

Explain your method to a partner.

2 Work out the perimeter of the rectangle.



Explain your method to your partner.

Did you work it out in the same way?

3 Complete the calculations.

a) $(\frac{2}{3} + \frac{2}{3}) \times 3 =$ 4

b) $(\frac{2}{3} + \frac{2}{3}) \div 3 =$ $\frac{4}{9}$

c) $\frac{2}{3} + \frac{2}{3} \times 3 =$ $2\frac{2}{3}$

d) $\frac{2}{3} + \frac{2}{3} \div 3 =$ $\frac{8}{9}$

4 Jack mixes $\frac{2}{3}$ of a litre of orange juice and $\frac{3}{4}$ of a litre of apple juice.

He pours the juice into 5 glasses equally.

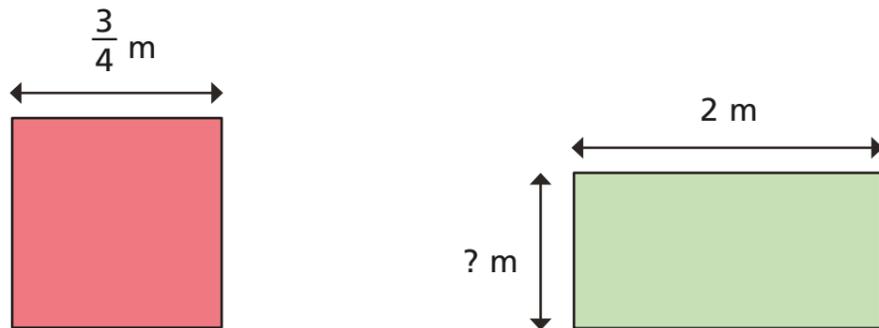
How much juice is in each glass?

$$\frac{2}{3} + \frac{3}{4} = \frac{17}{12}$$

$$\frac{17}{12} \div 5 = \frac{17}{60}$$

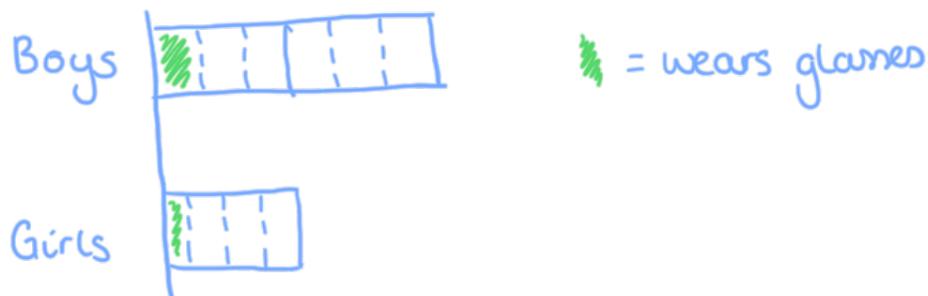
$\frac{17}{60} \text{ l}$

- 5 The area of these two shapes are equal.
Find the height of the rectangle.



$\frac{9}{32}$

- 6 In a class, $\frac{2}{3}$ of the pupils are boys.
 $\frac{1}{4}$ of the girls wear glasses and $\frac{1}{6}$ of the boys wear glasses.
Do more boys or girls wear glasses?
Explain your reasoning.



$\frac{2}{3} \times \frac{1}{6} = \frac{1}{9}$ $\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$ $\frac{1}{9} > \frac{1}{12}$
More boys wear glasses.



- 7 Work out the calculation.

$$\left(1\frac{3}{5} - \frac{7}{10}\right)^2$$

$\frac{81}{100}$

- 8 Use what you know about working with fractions to explain, prove or disprove the following statements.

a) Half of a half of a half is an eighth.

$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$ This is true.

b) Quarter of a half plus half of a quarter is a quarter.

$\frac{1}{4} \times \frac{1}{2} + \frac{1}{2} \times \frac{1}{4} = \frac{1}{8} + \frac{1}{8} = \frac{2}{8} = \frac{1}{4}$ This is true.

- 9



Various answers.

$$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} \times \begin{array}{|c|} \hline \square \\ \hline \end{array} + \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

Explore the different totals you can make using each card once only.

