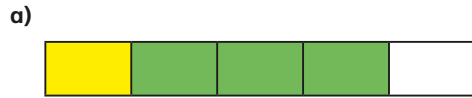
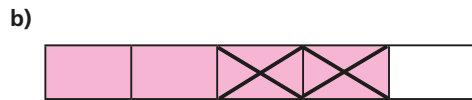


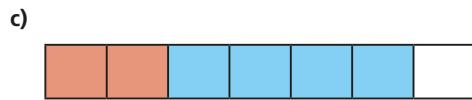
**1** Complete the calculations for the representations.



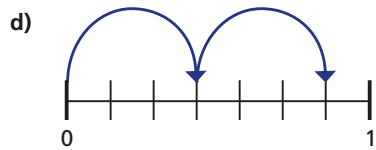
$$\frac{1}{5} + \frac{3}{5} = \frac{\square}{5}$$



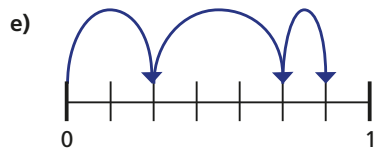
$$\frac{4}{5} - \frac{2}{5} = \frac{\square}{5}$$



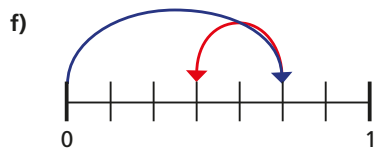
$$\frac{2}{\square} + \frac{4}{\square} = \frac{\square}{\square}$$



$$\frac{3}{7} + \frac{\square}{\square} = \frac{\square}{\square}$$



$$\frac{2}{\square} + \frac{3}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$$



$$\frac{\square}{7} - \frac{2}{7} = \frac{3}{7}$$



**2** Work out the calculations.

a)  $\frac{4}{9} + \frac{3}{9}$

c)  $\frac{4}{9} + \frac{5}{9}$

e)  $\frac{8}{13} - \frac{3}{13} - \frac{5}{13}$

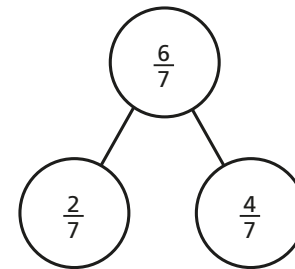
b)  $\frac{4}{9} + \frac{4}{9}$

d)  $\frac{8}{13} - \frac{3}{13}$

f)  $\frac{12}{25} + \frac{5}{25} + \frac{8}{25}$

Which two questions had the same answer?  
Discuss with a partner why this happened.

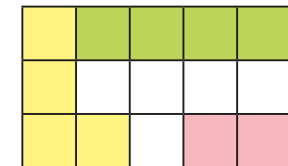
**3** Here is a part-whole model.



a) Write all the calculations that the part-whole model represents.

b) How many other ways could you make  $\frac{6}{7}$ ?

**4** Jack and Nijah have shaded a grid.



a) Jack uses it to show that  $\frac{4}{15} + \frac{4}{15} = \frac{8}{15}$

Where does Jack see this?

b) Nijah uses it to show that  $\frac{15}{15} - \frac{4}{15} = \frac{11}{15}$

Where does Nijah see this?

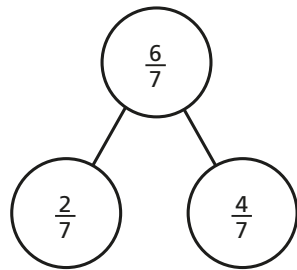
**2** Work out the calculations.

- a)  $\frac{4}{9} + \frac{3}{9}$                       c)  $\frac{4}{9} + \frac{5}{9}$                       e)  $\frac{8}{13} - \frac{3}{13} - \frac{5}{13}$   
 b)  $\frac{4}{9} + \frac{4}{9}$                       d)  $\frac{8}{13} - \frac{3}{13}$                       f)  $\frac{12}{25} + \frac{5}{25} + \frac{8}{25}$

Which two questions had the same answer?  
 Discuss with a partner why this happened.

**3** Here is a part-whole model.

a) Write all the calculations that the part-whole model represents.



b) How many other ways could you make  $\frac{6}{7}$ ?

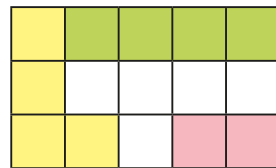
**4** Jack and Nijah have shaded a grid.

a) Jack uses it to show that  $\frac{4}{15} + \frac{4}{15} = \frac{8}{15}$

Where does Jack see this?

b) Nijah uses it to show that  $\frac{15}{15} - \frac{4}{15} = \frac{11}{15}$

Where does Nijah see this?



c) How many fraction calculations can you find from the grid?

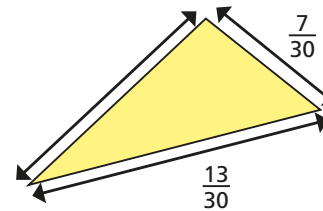
You could build the grid to help you discover more.

Write your calculations.

**5** Find the missing terms in the linear sequences.

- a)  $0, \frac{2}{9}, \frac{4}{9}, \square, \frac{8}{9}$                       b)  $\frac{11}{12}, \frac{8}{12}, \square, \frac{2}{12}$                       c)  $\frac{1}{25}, \square, \frac{9}{25}, \square$

**6** The perimeter of the triangle is  $\frac{29}{30}$  units.



Find the missing length.

**7** Work out the calculations.

- a)  $\frac{7}{10} + \frac{3}{10}$                       c)  $\frac{3}{4} + \frac{1}{3} + \frac{1}{4} - \frac{2}{3}$   
 b)  $\frac{2}{3} - \frac{1}{3} + \frac{2}{5} + \frac{3}{5}$                       d)  $\frac{17}{10} + \frac{2}{9} - \frac{7}{10} - \frac{2}{9}$

**8** Solve the equations.

- a)  $x + \frac{2}{11} = \frac{7}{11}$   
 b)  $y + \frac{7}{12} = 1$