Add and subtract fractions with the same denominator
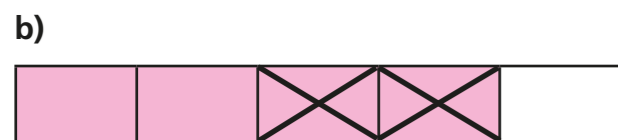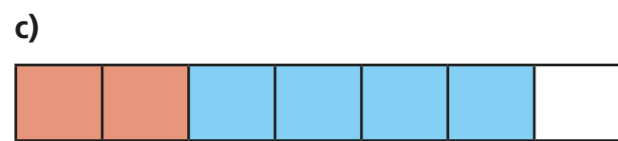
1 Complete the calculations for the representations.
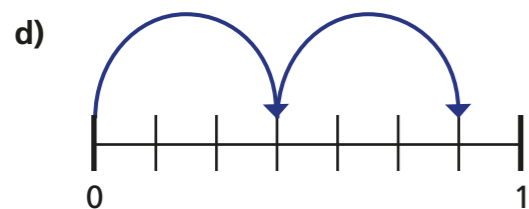
a)

$$\frac{1}{5} + \frac{3}{5} = \boxed{\frac{4}{5}}$$
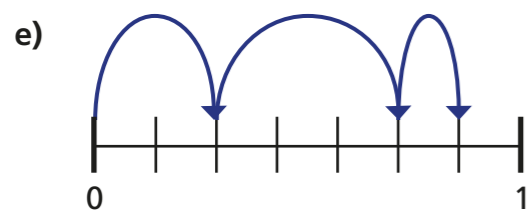
b)

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

c)

$$\frac{2}{\boxed{7}} + \frac{4}{\boxed{7}} = \frac{6}{\boxed{7}}$$

d)

$$\frac{3}{7} + \frac{\boxed{3}}{\boxed{7}} = \frac{\boxed{6}}{\boxed{7}}$$

e)

$$\frac{2}{\boxed{7}} + \frac{3}{\boxed{7}} + \frac{\boxed{1}}{\boxed{7}} = \frac{\boxed{6}}{\boxed{7}}$$

f)

$$\frac{\boxed{5}}{7} - \frac{2}{7} = \frac{3}{7}$$

2 Work out the calculations.

a) $\frac{4}{9} + \frac{3}{9} = \boxed{\frac{7}{9}}$

d) $\frac{8}{13} - \frac{3}{13} = \boxed{\frac{5}{13}}$

b) $\frac{4}{9} + \frac{4}{9} = \boxed{\frac{8}{9}}$

e) $\frac{8}{13} - \frac{3}{13} - \frac{5}{13} = \boxed{\frac{0}{13}}$

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

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

Which two questions had the same answer? __c) & f)__

Discuss with a partner why this happened.

3 Here is a part-whole model.

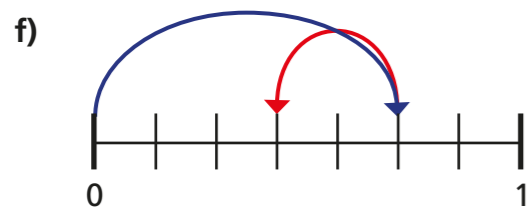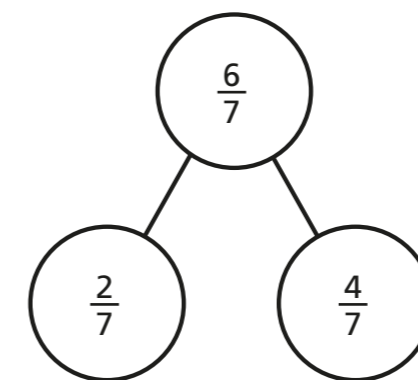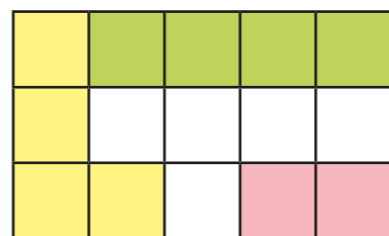**a)** Write all the calculations that the part-whole model represents.

$$\frac{2}{7} + \frac{4}{7} = \frac{6}{7} \qquad \frac{6}{7} - \frac{2}{7} + \frac{4}{7}$$
$$\frac{4}{7} + \frac{2}{7} = \frac{6}{7} \qquad \frac{6}{7} = \frac{4}{7} + \frac{2}{7}$$
$$\frac{6}{7} - \frac{4}{7} = \frac{2}{7} \qquad \frac{2}{7} = \frac{6}{7} - \frac{4}{7}$$
$$\frac{6}{7} - \frac{2}{7} > \frac{4}{7} \qquad \frac{4}{7} = \frac{6}{7} - \frac{2}{7}$$

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.
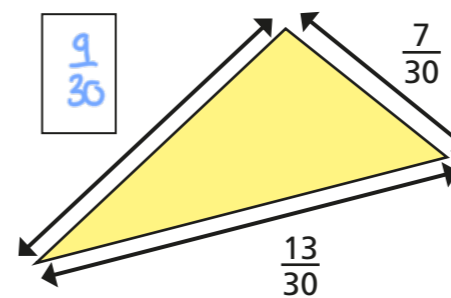
Write your calculations.

Various answers.

5 Find the missing terms in the linear sequences.

a) $0, \frac{2}{9}, \frac{4}{9}, \boxed{\frac{6}{9}}, \frac{8}{9}$

c) $\frac{1}{25}, \boxed{\frac{5}{25}}, \frac{9}{25}, \boxed{\frac{13}{25}}$

b) $\frac{11}{12}, \frac{8}{12}, \boxed{\frac{5}{12}}, \frac{2}{12}$

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

Find the missing length.

7 Work out the calculations.

a) $\frac{7}{10} + \frac{3}{10} = \boxed{\frac{10}{10}}$

c) $\frac{3}{4} + \frac{1}{3} + \frac{1}{4} - \frac{2}{3} = \boxed{\frac{2}{3}}$

b) $\frac{2}{3} - \frac{1}{3} + \frac{2}{5} + \frac{3}{5} = \boxed{1\frac{1}{3}}$

d) $\frac{17}{10} + \frac{2}{9} - \frac{7}{10} - \frac{2}{9} = \boxed{\frac{10}{10}}$

8 Solve the equations.

a) $x + \frac{2}{11} = \frac{7}{11}$

$x = \boxed{\frac{5}{11}}$

b) $y + \frac{7}{12} = 1$

$y = \boxed{\frac{5}{12}}$