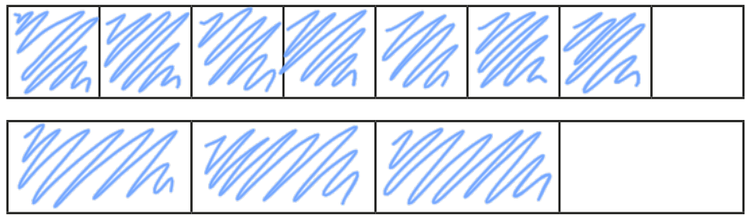
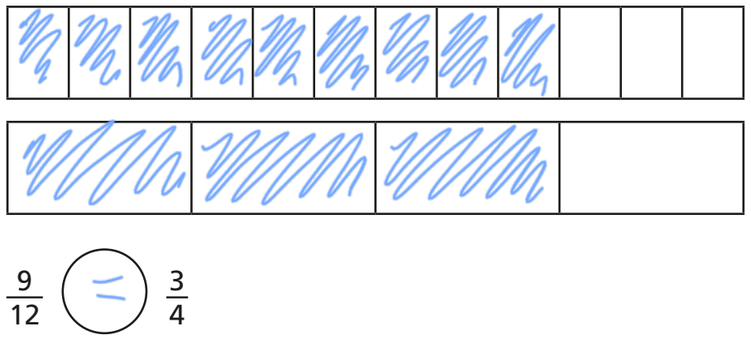
# Compare and order fractions less than 1

**1** Write <, > or = to compare the fractions.

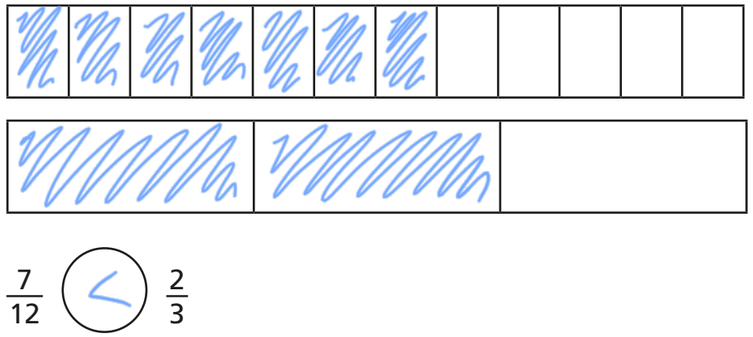
Use the bar models to help you.



$\frac{7}{8}$ > $\frac{3}{4}$



$\frac{9}{12}$ = $\frac{3}{4}$



$\frac{7}{12}$ < $\frac{2}{3}$

**2** Write <, > or = to compare the fractions.

a) $\frac{1}{5}$ < $\frac{4}{15}$

b) $\frac{2}{5}$ > $\frac{4}{15}$

c) $\frac{2}{5}$ = $\frac{6}{15}$

d) $\frac{2}{3}$ > $\frac{6}{15}$

e) $\frac{2}{3}$ > $\frac{6}{12}$

f) $\frac{2}{3}$ = $\frac{6}{9}$

g) $\frac{2}{9}$ < $\frac{1}{3}$

h) $\frac{4}{9}$ > $\frac{1}{3}$

i) $\frac{4}{12}$ = $\frac{1}{3}$

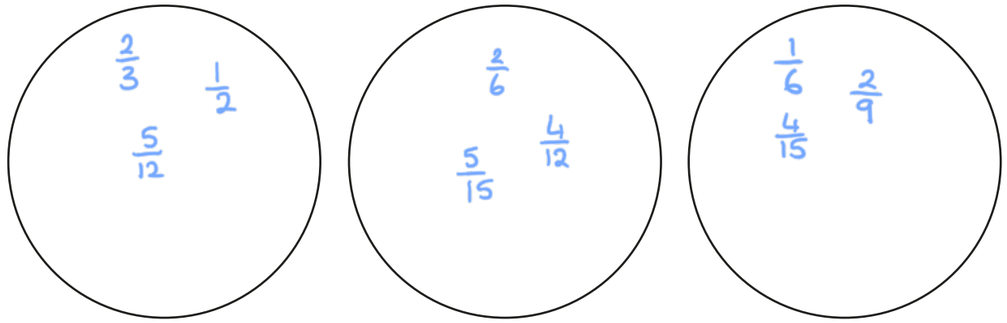
j) $\frac{8}{12}$ = $\frac{2}{3}$

k) $\frac{8}{12}$ < $\frac{3}{3}$

l) $\frac{8}{12}$ < $\frac{3}{4}$

**3** Sort the fractions into the circles.

greater than $\frac{1}{3}$ | equal to $\frac{1}{3}$ | less than $\frac{1}{3}$




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $\frac{2}{3}$ | $\frac{1}{6}$ | $\frac{1}{2}$ | $\frac{2}{6}$ | $\frac{2}{9}$ | $\frac{5}{12}$ | $\frac{4}{12}$ | $\frac{4}{15}$ | $\frac{5}{15}$ |

**4** What could the missing numerators and denominators be?

Write a number in each box to make the statements correct.

e.g. $\frac{\boxed{1}}{5} < \frac{5}{15}$

a) $\frac{\boxed{1}}{5} < \frac{5}{15}$

b) $\frac{\boxed{2}}{6} < \frac{5}{12}$

c) $\frac{\boxed{5}}{12} < \frac{5}{6}$

d) $\frac{\boxed{1}}{3} < \frac{5}{6}$

e) $\frac{3}{5} < \frac{5}{\boxed{5}}$

f) $\frac{5}{6} < \frac{5}{\boxed{5}}$

g) $\frac{6}{9} < \frac{5}{\boxed{6}}$

h) $\frac{10}{12} < \frac{5}{\boxed{4}}$

i) $\frac{23}{24} < \frac{5}{\boxed{5}}$

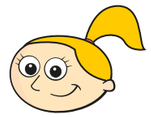
Compare answers with a partner.

**5** Tommy and Eva are comparing fractions.

$\frac{2}{3}$ $\frac{8}{12}$ $\frac{4}{9}$

I found a common denominator of 36 to compare the fractions.

Tommy



I found a common numerator of 4 to compare the fractions.

Eva

Whose method is more efficient? Various

Talk about your answer with a partner.

**6** Write the fractions in ascending order.

a) $\frac{2}{5}, \frac{2}{7}, \frac{2}{3}, \frac{2}{4}, \frac{2}{10}$

$\frac{2}{10}$ $\frac{2}{7}$ $\frac{2}{5}$ $\frac{2}{4}$ $\frac{2}{3}$

b) $\frac{2}{3}, \frac{5}{9}, \frac{1}{9}, \frac{5}{6}, \frac{2}{9}$

$\frac{1}{9}$ $\frac{2}{9}$ $\frac{5}{9}$ $\frac{2}{3}$ $\frac{5}{6}$

c) $\frac{3}{5}, \frac{7}{10}, \frac{1}{2}, \frac{3}{10}, \frac{1}{5}$

$\frac{1}{5}$ $\frac{3}{10}$ $\frac{1}{2}$ $\frac{3}{5}$ $\frac{7}{10}$

d) $\frac{3}{8}, \frac{6}{17}, \frac{12}{30}, \frac{2}{7}, \frac{1}{3}$

$\frac{2}{7}$ $\frac{1}{3}$ $\frac{6}{17}$ $\frac{3}{8}$ $\frac{12}{30}$

**7** What could the missing numerator be?

$\frac{3}{5} < \frac{\square}{15} < \frac{9}{10}$

Write all four possibilities.

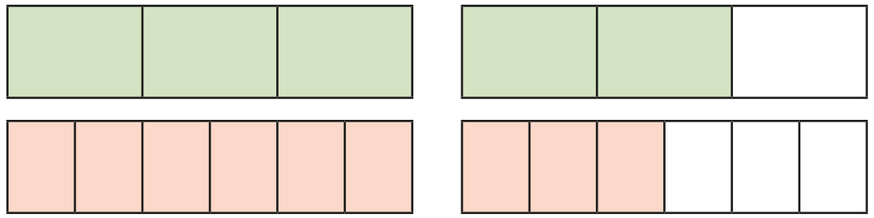
$\frac{10}{15}$ $\frac{11}{15}$ $\frac{12}{15}$ $\frac{13}{15}$

# Compare and order fractions greater than 1

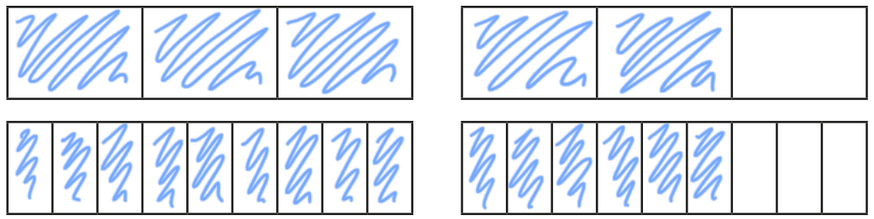
**1** Write <, > or = to compare the fractions.

Use the bar models to help you.

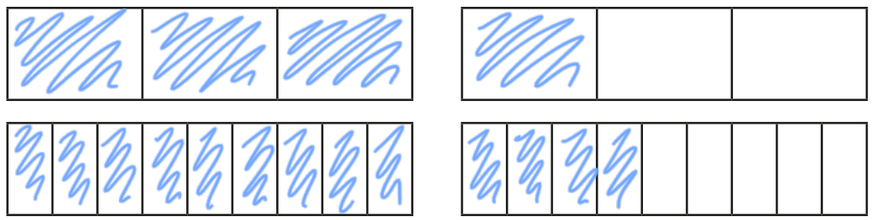
**a)** $\frac{5}{3}$ > $\frac{9}{6}$



**b)** $\frac{5}{3}$ = $\frac{15}{9}$



**c)** $\frac{4}{3}$ < $\frac{13}{9}$



**2** Write <, > or = to compare the fractions.

**a)** $\frac{7}{4}$ > $\frac{12}{8}$

**b)** $\frac{7}{4}$ < $\frac{22}{12}$

**c)** $\frac{22}{12}$ > $\frac{10}{6}$

**d)** $\frac{10}{6}$ = $\frac{5}{3}$

**e)** $\frac{10}{6}$ < $\frac{5}{2}$

**f)** $\frac{5}{2}$ > $\frac{18}{8}$

**g)** $\frac{18}{8}$ > $\frac{32}{16}$

**h)** $\frac{18}{8}$ = $\frac{9}{4}$

**i)** $\frac{9}{4}$ < $\frac{18}{2}$

**3** Filip has $3\frac{3}{16}$ bottles of juice.

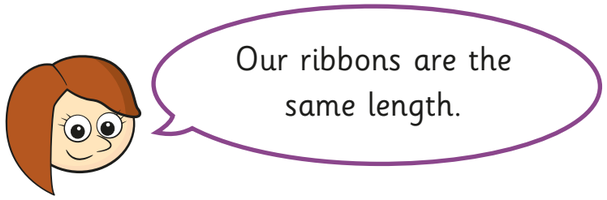
Scott has $3\frac{1}{4}$ bottles of juice.

Who has more juice?

Scott has more juice.

**4** Rosie's ribbon is $\frac{7}{4}$ metres long.

Teddy's ribbon is $\frac{7}{8}$ metres long.




Explain why Rosie is wrong.

The number of parts is the same but the size of their parts is different. Rosie's ribbon is longer.

**5** Write the fractions in descending order.

**a)** $\frac{8}{3}, \frac{4}{5}, \frac{8}{15}, \frac{8}{2}, \frac{16}{8}$

$\frac{8}{2}$ $\frac{8}{3}$ $\frac{16}{8}$ $\frac{4}{5}$ $\frac{8}{15}$

**b)** $\frac{7}{3}, \frac{12}{9}, \frac{15}{9}, \frac{15}{6}, \frac{7}{9}$

$\frac{15}{6}$ $\frac{7}{3}$ $\frac{15}{9}$ $\frac{12}{9}$ $\frac{7}{9}$

**c)** $\frac{14}{5}, \frac{17}{10}, \frac{27}{10}, \frac{3}{1}, \frac{42}{20}$

$\frac{3}{1}$ $\frac{14}{5}$ $\frac{27}{10}$ $\frac{42}{20}$ $\frac{17}{10}$

**6** Find three possible ways to complete each statement.

**a)** $\frac{1}{4} < \frac{\boxed{2}}{4} < \frac{9}{8}$

$\frac{1}{4} < \frac{\boxed{3}}{4} < \frac{9}{8}$

$\frac{1}{4} < \frac{\boxed{4}}{4} < \frac{9}{8}$

**b)** $\frac{1}{4} < \frac{\boxed{4}}{15} < \frac{7}{15}$

$\frac{1}{4} < \frac{\boxed{5}}{15} < \frac{7}{15}$

$\frac{1}{4} < \frac{\boxed{6}}{15} < \frac{7}{15}$

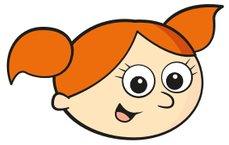
**c)** $\frac{4}{5} < \frac{8}{\boxed{8}} < \frac{8}{4}$

$\frac{4}{5} < \frac{8}{\boxed{7}} < \frac{8}{4}$

$\frac{4}{5} < \frac{8}{\boxed{6}} < \frac{8}{4}$

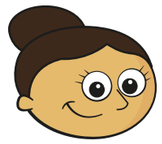
**7** Alex and Dora each have two identical cakes.

Alex cuts each of her cakes into 6 equal pieces and gives 10 of her friends a piece each.

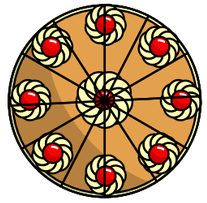


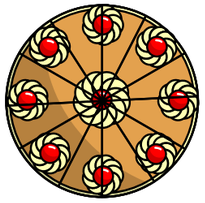
Alex

Dora cuts each of her cakes into 12 equal pieces and gives 18 of her friends a piece each.



Dora





Who has more cake left?

Dora has more cake left.

**8** The greater the numerator, the greater the fraction.

Give at least three examples to show that the statement is not correct.

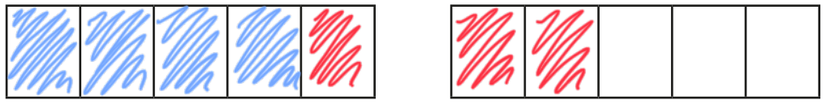
Various answers e.g. $\frac{3}{17} < \frac{1}{2}$

# Add and subtract fractions

**1** Complete the calculations.

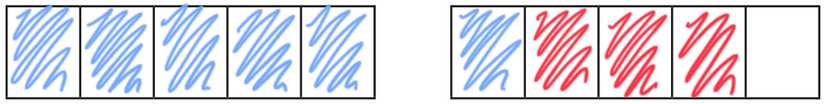
Use the bar models to help you.

**a)**



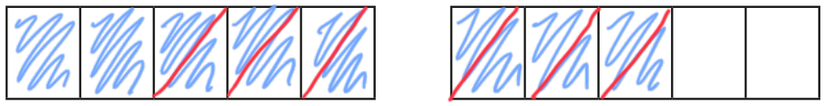
$\frac{4}{5} + \frac{3}{5} = \boxed{\frac{7}{5}} = \boxed{1\frac{2}{5}}$

**b)**



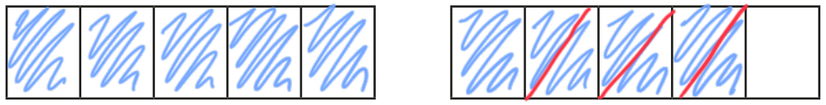
$\frac{6}{5} + \frac{3}{5} = \boxed{\frac{9}{5}} = \boxed{1\frac{4}{5}}$

**c)**



$\frac{8}{5} - \frac{6}{5} = \boxed{\frac{2}{5}}$

**d)**



$\frac{9}{5} - \frac{3}{5} = \boxed{\frac{6}{5}} = \boxed{1\frac{1}{5}}$

**2** Complete the calculations.

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

**b)** $\frac{4}{7} + \frac{3}{7} = \boxed{\frac{7}{7}} = \boxed{1}$

**c)** $\frac{4}{7} + \frac{4}{7} = \boxed{\frac{8}{7}} = \boxed{1\frac{1}{7}}$

**d)** $\frac{8}{7} - \frac{3}{7} = \boxed{\frac{5}{7}}$

**e)** $\frac{7}{9} + \frac{8}{9} = \boxed{\frac{15}{9}} = \boxed{1\frac{2}{3}}$

**f)** $\frac{17}{9} - \frac{8}{9} = \boxed{\frac{9}{9}} = \boxed{1}$

**g)** $\frac{16}{9} - \frac{8}{9} = \boxed{\frac{8}{9}}$

**h)** $\frac{7}{9} + \frac{2}{9} + \frac{8}{9} = \boxed{\frac{17}{9}} = \boxed{1\frac{8}{9}}$

**i)** $\frac{7}{15} + \frac{2}{15} + \frac{8}{15} = \boxed{\frac{17}{15}} = \boxed{1\frac{2}{15}}$

**j)** $\frac{7}{15} - \frac{2}{15} + \frac{8}{15} = \boxed{\frac{13}{15}}$

**3**

$\frac{\square}{8} + \frac{\square}{8} = \frac{13}{8}$

What could the missing numerators be?

Give six different possibilities.

e.g.

$\frac{\boxed{1}}{8} + \frac{\boxed{12}}{8} = \frac{13}{8}$

$\frac{\boxed{2}}{8} + \frac{\boxed{11}}{8} = \frac{13}{8}$

$\frac{\boxed{3}}{8} + \frac{\boxed{10}}{8} = \frac{13}{8}$

$\frac{\boxed{4}}{8} + \frac{\boxed{9}}{8} = \frac{13}{8}$

$\frac{\boxed{5}}{8} + \frac{\boxed{8}}{8} = \frac{13}{8}$

$\frac{\boxed{7}}{8} + \frac{\boxed{6}}{8} = \frac{13}{8}$

**4** Dora has $2\frac{3}{8}$ litres of juice.

She pours out $\frac{9}{8}$ litres of juice.

How many litres of juice does she have left?

Dora has $\boxed{1\frac{1}{4}}$ litres left.

**5** Fill in the missing numerators.

**a)** $\frac{3}{8} + \frac{\boxed{10}}{8} = \frac{13}{8}$

**b)** $\frac{13}{8} - \frac{\boxed{6}}{8} = \frac{7}{8}$

**c)** $\frac{13}{8} - \frac{\boxed{5}}{8} = 1$

**d)** $\frac{11}{9} + \frac{\boxed{11}}{9} = \frac{22}{9} = 2\frac{\boxed{4}}{9}$

**e)** $\frac{11}{9} + \frac{\boxed{9}}{9} = \frac{\boxed{20}}{9} = 2\frac{2}{9}$

**f)** $\frac{22}{9} - \frac{\boxed{2}}{9} = \frac{\boxed{20}}{9} = 2\frac{2}{9}$

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

**h)** $\frac{5}{7} + \frac{\boxed{4}}{7} + \frac{5}{7} = 2$

**i)** $\frac{6}{7} + \frac{\boxed{2}}{7} + \frac{6}{7} = 2$

**j)** $\frac{14}{7} + \frac{\boxed{3}}{7} + \frac{4}{7} = 3$

**k)** $\frac{15}{7} + \frac{\boxed{1}}{7} + \frac{5}{7} = 3$

**i)** $\frac{16}{7} + \frac{\boxed{6}}{7} + \frac{6}{7} = 4$

Compare answers with a partner. What do you notice?

**6** Here are some fraction cards.

$\frac{9}{8}$ $\frac{13}{8}$ $\frac{1}{8}$ $\frac{7}{8}$ $\frac{3}{8}$ $1\frac{7}{8}$

Use the cards to write pairs of fractions with a total of 2

$\boxed{1\frac{7}{8}} + \boxed{\frac{1}{8}} = 2$

$\boxed{\frac{13}{8}} + \boxed{\frac{3}{8}} = 2$

$\boxed{\frac{9}{8}} + \boxed{\frac{7}{8}} = 2$

**7** Annie and Dexter both have a skipping rope.

Annie's rope is $\frac{3}{4}$ m shorter than Dexter's rope.

The ropes are $\frac{13}{4}$ m altogether.

How long is each skipping rope?

Annie's rope is $\boxed{1\frac{1}{4}}$ m long.

Dexter's rope is $\boxed{2}$ m long.

# Add fractions within 1

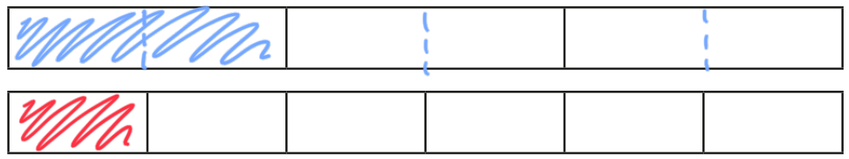
**1** Complete the additions.

Use the bar models to help you.

**a)**

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

**b)**



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

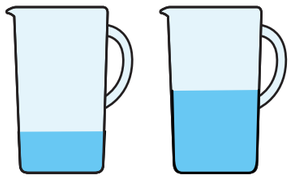
**c)**

$\frac{2}{3} + \frac{1}{6} = \boxed{\frac{5}{6}}$

**2** Match the additions that have the same answer.

| | |
|---|---|
| $\frac{3}{4} + \frac{1}{12}$ | $\frac{10}{12} + \frac{1}{12}$ |
| $\frac{2}{3} + \frac{1}{12}$ | $\frac{6}{12} + \frac{1}{12}$ |
| $\frac{5}{6} + \frac{1}{12}$ | $\frac{9}{12} + \frac{1}{12}$ |
| $\frac{1}{2} + \frac{1}{12}$ | $\frac{8}{12} + \frac{1}{12}$ |

**3** Here are two jugs.



One jug contains $\frac{5}{18}$ litres of water.

The other jug contains $\frac{4}{9}$ litres of water.

How many litres of water are there altogether?

There are $\boxed{\frac{13}{18}}$ litres of water altogether.

**4** **a)** Complete the calculations.

| | |
|---|---|
| $\frac{1}{5} + \frac{1}{10} = \frac{3}{10}$ | $\frac{1}{16} + \frac{5}{32} = \frac{7}{32}$ |
| $\frac{2}{5} + \frac{1}{10} = \frac{5}{10}$ $(\frac{1}{2})$ | $\frac{1}{8} + \frac{5}{32} = \frac{9}{32}$ |
| $\frac{3}{5} + \frac{1}{10} = \frac{7}{10}$ | $\frac{1}{4} + \frac{5}{32} = \frac{13}{32}$ |
| $\frac{4}{5} + \frac{1}{10} = \frac{9}{10}$ | $\frac{1}{2} + \frac{5}{32} = \frac{21}{32}$ |

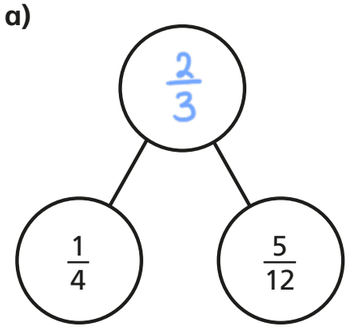
**b)** Can you spot any patterns? Talk to a partner about it.

**c)** What calculation would come next in each set?

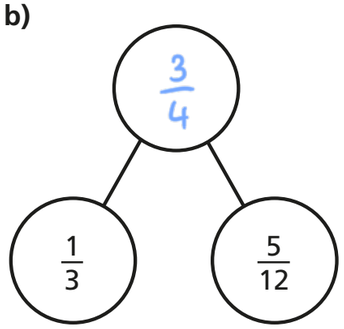
$\frac{5}{5} + \frac{1}{10} = \frac{11}{10} = 1\frac{1}{10}$ $\quad\quad$ $\frac{1}{1} + \frac{5}{32} = 1\frac{5}{32}$

**5** Complete the part-whole models.

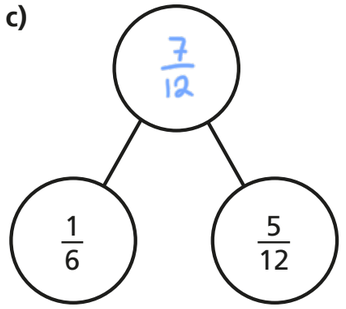
**a)**



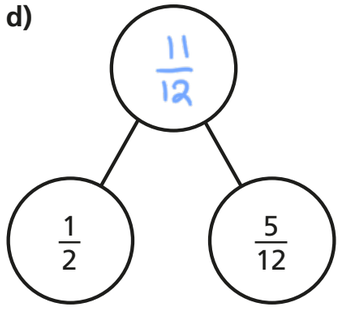

**b)**




**c)**




**d)**




**6** $\frac{\square}{8} + \frac{\square}{16} = \frac{7}{8}$

What could the missing numerators be?

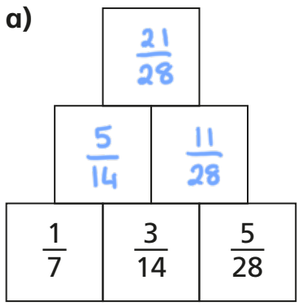
Give six different possibilities.

$\frac{1}{8} + \frac{12}{16} = \frac{7}{8}$ $\quad$ $\frac{3}{8} + \frac{8}{16} = \frac{7}{8}$ $\quad$ $\frac{5}{8} + \frac{4}{16} = \frac{7}{8}$

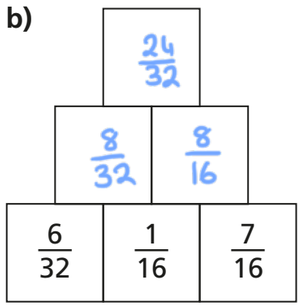
$\frac{2}{8} + \frac{10}{16} = \frac{7}{8}$ $\quad$ $\frac{4}{8} + \frac{6}{16} = \frac{7}{8}$ $\quad$ $\frac{6}{8} + \frac{2}{16} = \frac{7}{8}$

**7** Complete the addition pyramids.

**a)**




**b)**




**c)** What fraction is equivalent to both of the fractions at the top of the pyramids?

$\frac{3}{4}$