Add and subtract unit fractions with the same denominator

1 **a)** Which are unit fractions?

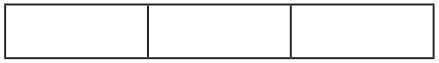
$\frac{1}{2}$ $\frac{2}{3}$ $\frac{4}{1}$ $\frac{1}{10}$ $\frac{2}{8}$

b) Write three more unit fractions.

c) Describe, in your own words, what is meant by a unit fraction.

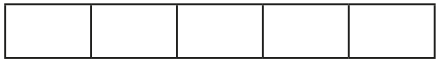
2 Use the bar models to help you with the calculations.

a) $\frac{1}{3} + \frac{1}{3}$

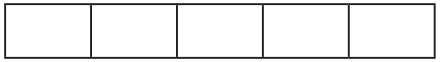


b) $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

c) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

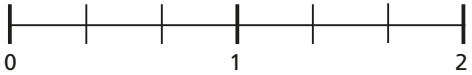


d) $\frac{1}{5} + \frac{1}{5} - \frac{1}{5}$

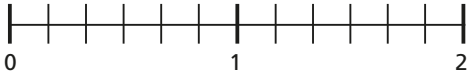


3 Use the number lines to help you with the calculations.

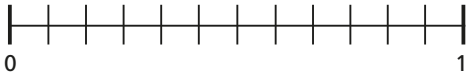
a) $\frac{1}{3} + \frac{1}{3} =$



b) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6}$



c) $\frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$



4 Write the fractions as sums of unit fractions.

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

b) $\frac{2}{7} = \square + \square$

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

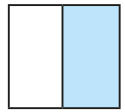
d) $\frac{3}{14} =$ _____

e) $\frac{4}{14} =$ _____

f) $\frac{7}{14} =$ _____

5

$\frac{1}{2}$ cannot be written as the sum of unit fractions because it is already a unit fraction.

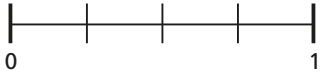


Is Dexter correct?

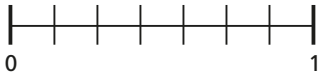
Explain your reasoning.

6 Fill in the missing denominators and show the calculations on the number lines.

a) $\frac{1}{\square} + \frac{1}{\square} = \frac{2}{4}$



b) $\frac{1}{\square} - \frac{1}{\square} = \frac{0}{7}$



Add and subtract unit fractions with the same denominator

4 Write the fractions as sums of unit fractions.

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

b) $\frac{2}{7} = \square + \square$

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

d) $\frac{3}{14} =$ _____

e) $\frac{4}{14} =$ _____

f) $\frac{7}{14} =$ _____

5

$\frac{1}{2}$ cannot be written as the sum of unit fractions because it is already a unit fraction.

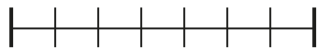
Is Dexter correct?

Explain your reasoning.

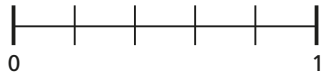
6 Fill in the missing denominators and show the calculations on the number lines.

a) $\frac{1}{\square} + \frac{1}{\square} = \frac{2}{4}$

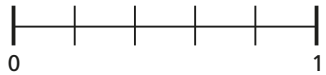
b) $\frac{1}{\square} - \frac{1}{\square} = \frac{0}{7}$



c) $\frac{3}{5} = \frac{1}{\square} + \frac{1}{\square} + \frac{1}{\square} + \frac{1}{\square} - \frac{1}{\square}$



d) $\frac{5}{5} = \frac{1}{\square} + \frac{1}{\square} + \frac{1}{\square} + \frac{1}{\square} + \frac{1}{\square}$



What do you notice about part d)? Discuss with a partner.

7 Complete the calculations by adding or subtracting unit fractions.

a) $\frac{3}{5} = \frac{1}{5} + \frac{1}{5}$ _____

b) $\frac{2}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ _____

c) $\frac{9}{9} = \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$ _____

d) $\frac{0}{6} = \frac{1}{6} + \frac{1}{6}$ _____

8 Complete the addition and the sentences to show how you can use unit fractions to make a whole.

Use the bar models to help.

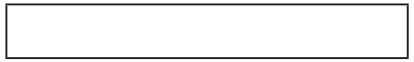
a) $\frac{4}{4} = \frac{1}{4} +$ _____

You need to add $\frac{1}{4}$ $\square$ times to make a whole.

b) $\frac{\square}{6} = \frac{1}{6} +$ _____

You need to add $\frac{1}{6}$ $\square$ times to make a whole.

c) $\frac{\square}{20} = \frac{1}{\square} +$ _____



You need to add $\frac{1}{\square}$ $\square$ times to make a whole.

Why is it not suitable to draw a bar model for part c)?