UNIT 5 Add or subtract fractions with the same denominator

Key point

When adding or subtracting fractions, if the denominators are the same, **add or subtract the numerators only**. Use the same denominator. Some answers may be greater than 1. Such answers can be given as an **improper fraction** or a **mixed number**.

numerator $\longrightarrow$
denominator $\longrightarrow$

improper fraction / mixed number

$$\frac{3}{10} + \frac{6}{10} + \frac{4}{10} = \frac{13}{10} = 1\frac{3}{10}$$
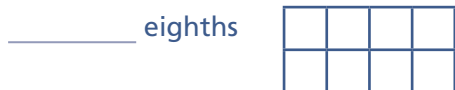
$$\frac{11}{10} - \frac{6}{10} + \frac{2}{10} = \frac{7}{10}$$ Look carefully at the **signs** to see if you must **add or subtract** each fraction.

Get started

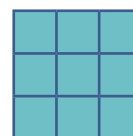1. Colour $\frac{1}{8}$, $\frac{3}{8}$ and $\frac{3}{8}$ of the rectangle. How many eighths are now coloured?

_____ eighths

2. $\frac{7}{10} + \frac{4}{10} + \frac{8}{10} = \frac{19}{\boxed{}}$

3. $\frac{11}{7} - \frac{3}{7} = \frac{\boxed{}}{7}$

4. $\frac{2}{9} + \frac{3}{9} - \frac{1}{9} = \boxed{}$

5. Decrease by $\frac{9}{8}$ by $\frac{6}{8}$. _____

6. Give the total of $\frac{5}{6}$, $\frac{5}{6}$ and $\frac{3}{6}$ as an improper fraction. _____

7. Add $\frac{4}{5}$ to $\frac{4}{5}$ and then subtract $\frac{2}{5}$. Give your answer as a mixed number. _____

8. $\frac{13}{12} - \boxed{} = \frac{2}{12}$

Now try these

9. $\frac{15}{100} + \frac{5}{100} - \frac{11}{100} = \boxed{}$

10. In a litter of kittens, $\frac{1}{7}$ of them are black, $\frac{2}{7}$ of them are ginger and the rest are brown. What fraction of the kittens are brown? _____

11. Find the values of a and b. $\frac{22}{10} - \frac{3}{10} = \frac{a}{10} = 1\frac{b}{10}$ $a = $ _____ $b = $ _____

12. Give the sum of five-sixths, two-sixths and ten-sixths as a mixed number. _____

13. Write the answer as a mixed number. $\frac{4}{12} + \frac{9}{12} - \frac{4}{12} + \frac{10}{12} = \boxed{}$

14 Three identical fractions have a total of $1\frac{4}{5}$.

What is each fraction? _____

$$\vdash \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv \quad \dashv$$

0   1   2

15 $\boxed{\dfrac{5}{15} = \dfrac{1}{3}}$ Use this fact to help you find the difference between $\frac{13}{15}$ and $\frac{1}{3}$. _____

16 Subtract $\frac{3}{8}$ from $\frac{7}{8}$ and give your answer as an equivalent fraction with the numerator 1. _____

17 $\boxed{\dfrac{17}{100} \qquad \dfrac{15}{100} \qquad \dfrac{19}{100} \qquad \dfrac{24}{100} \qquad \dfrac{21}{100}}$

Look at the fractions above. What is the largest fraction minus the smallest fraction? _____

18 Subtract $\frac{12}{20}$ from $\frac{17}{20}$ and give your answer as an equivalent fraction with the numerator 1. _____

Challenge

19 When $\frac{6}{10}$ m is subtracted from $\frac{9}{10}$ m, how much less than 2 metres is the result? _____ m

20 What mixed number is subtracted from the sum of $\frac{12}{9}$ and $\frac{3}{9}$ to give the answer $\frac{5}{9}$? _____

21 Write the answer as an improper fraction and as a mixed number. $\dfrac{21}{15} + \dfrac{9}{15} - \dfrac{11}{15}$

a) improper fraction _____   **b)** mixed number _____

22 Zara uses $\frac{125}{100}$ kg from a full 2kg bag of coffee.

What fraction of a kilogram is left? _____ kg

23 Jake jogs a distance of 10km in 1 hour. After 35 minutes he has jogged $\frac{7}{12}$ of the distance.

What fraction of the distance does he complete in the next 25 minutes? _____

24 Peter spent $\frac{5}{12}$ of an hour watching a cartoon, $\frac{5}{12}$ of an hour watching a comedy and $\frac{6}{12}$ of an hour watching a quiz show.

a) What is the total time he spent watching these programmes? $\boxed{1\,\dfrac{}{12}}$ hr $= \boxed{1\,\dfrac{1}{}}$ hr

b) How many minutes is this? _____ min

25 $\boxed{\dfrac{15}{24} = \dfrac{5}{8} \text{ and } \dfrac{2}{8} = \dfrac{1}{4}}$ Use these facts to help you find the sum of $\frac{15}{24}$ and $\frac{1}{4}$ in eighths. _____

26 $\boxed{\dfrac{25}{60} = \dfrac{5}{12} \text{ and } \dfrac{6}{12} = \dfrac{1}{2}}$ Use these facts to help you find the sum of 25 minutes and half an hour. $\boxed{\dfrac{}{12}}$ of an hour

27 Paige pours $\frac{5}{8}$ litres from a full litre jug of juice. What fraction of a litre is left? _____ l

28 From a full 2-litre jug of water Sam pours $\frac{5}{4}$ litres.

What fraction of a litre is left? _____ l