



- 1 Work out $1 - \frac{3}{8}$

(1 mark)

Write 1 as $\frac{8}{8}$

$$\frac{8}{8} - \frac{3}{8} = \frac{5}{8}$$

$$\boxed{\frac{5}{8}}$$

- 2 Work out $\frac{2}{9} + \frac{5}{9}$

(1 mark)

Same denominators - add the tops

$$\frac{2}{9} + \frac{5}{9} = \frac{7}{9}$$

$$\boxed{\frac{7}{9}}$$

- 3 Find the number that is exactly halfway between $\frac{1}{4}$ and $\frac{5}{8}$

(2 marks)

Write both fractions with denominator 8

$$\frac{1}{4} = \frac{2}{8}$$

Add them

$$\frac{2}{8} + \frac{5}{8} = \frac{7}{8}$$

Halve the total

$$\frac{7}{8} \text{ divided by } 2 = \frac{7}{16}$$

$$\boxed{\frac{7}{16}}$$

4

Work out $\frac{3}{10} + \frac{1}{4}$

(2 marks)

Common denominator of 10 and 4 is 20

$$\frac{3}{10} = \frac{6}{20}$$

$$\frac{1}{4} = \frac{5}{20}$$

$$\frac{6}{20} + \frac{5}{20} = \frac{11}{20}$$

$$\boxed{\frac{11}{20}}$$

5

Amir eats $\frac{1}{3}$ of a pizza. Bea eats $\frac{1}{4}$ of the same pizza.

- What fraction of the pizza have they eaten altogether?
- What fraction of the pizza is left?

(3 marks)

a)

Common denominator is 12

$$\frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12}$$

$$= \frac{7}{12}$$

$$\boxed{\frac{7}{12}}$$

b)

$$1 - \frac{7}{12} = \frac{12}{12} - \frac{7}{12}$$

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

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

6

Freya is asked to work out $\frac{2}{3} + \frac{1}{6}$

Here is her working.

$$\frac{2}{3} + \frac{1}{6} = \frac{3}{9} = \frac{1}{3}$$

Describe **two** ways you can tell that Freya's method is wrong.

(2 marks)

Mistake 1: you cannot add fractions by adding numerators and adding denominators - you need a common denominator

Mistake 2: her answer $\frac{1}{3}$ is less than the $\frac{2}{3}$ she started with, but adding a positive fraction must give a bigger answer

The correct answer is $\frac{2}{3} + \frac{1}{6} = \frac{4}{6} + \frac{1}{6} = \frac{5}{6}$

The denominator names the size of the pieces. Convert thirds into sixths so that both fractions count equal-sized pieces; then add the number of pieces and keep that denominator

7

a. One of these fractions is **not** equivalent to $\frac{3}{5}$

$$\frac{6}{10} \quad \frac{9}{15} \quad \frac{12}{25} \quad \frac{15}{25}$$

Write down this fraction.

b. Work out $\frac{2}{5} + \frac{1}{3}$

(3 marks)

a) $\frac{6}{10}$, $\frac{9}{15}$ and $\frac{15}{25}$ all simplify to $\frac{3}{5}$, but $\frac{12}{25}$ does not ($\frac{3}{5} = \frac{15}{25}$, not $\frac{12}{25}$)

b) Use denominator 15

$$\frac{2}{5} = \frac{6}{15} \text{ and } \frac{1}{3} = \frac{5}{15}$$

$$\frac{6}{15} + \frac{5}{15} = \frac{11}{15}$$

8

Work out $4\frac{2}{5} - 1\frac{3}{4}$

Give your answer as a mixed number in its simplest form.

(3 marks)

Write as improper fractions

$$4\frac{2}{5} = \frac{22}{5} \text{ and } 1\frac{3}{4} = \frac{7}{4}$$

Use denominator 20

$$\frac{22}{5} = \frac{88}{20} \text{ and } \frac{7}{4} = \frac{35}{20}$$

$$\frac{88}{20} - \frac{35}{20} = \frac{53}{20} = 2\frac{13}{20}$$

$$\boxed{2\frac{13}{20}}$$

9

Work out $\frac{5}{6} - \frac{3}{8}$

(2 marks)

Common denominator of 6 and 8 is 24

$$\frac{5}{6} = \frac{20}{24}$$

$$\frac{3}{8} = \frac{9}{24}$$

$$\frac{20}{24} - \frac{9}{24} = \frac{11}{24}$$

$$\boxed{\frac{11}{24}}$$

10

Work out $\frac{3}{4} + \frac{5}{6}$

Give your answer as a mixed number.

(2 marks)

Common denominator is 12

$$\begin{aligned} \frac{3}{4} + \frac{5}{6} &= \frac{9}{12} + \frac{10}{12} \\ &= \frac{19}{12} \end{aligned}$$

12 goes into 19 once, remainder 7

$$\boxed{1\frac{7}{12}}$$

11

A jug holds $\frac{3}{4}$ litre of juice. Dina pours out $\frac{2}{5}$ litre.

How much juice is left in the jug?

(2 marks)

Common denominator is 20

$$\frac{3}{4} - \frac{2}{5} = \frac{15}{20} - \frac{8}{20}$$

$$= \frac{7}{20}$$

$$\boxed{\frac{7}{20} \text{ litre}}$$

12

a. Work out $\frac{7}{9} - \frac{1}{3}$

b. Work out $\frac{3}{4} \times \frac{2}{9}$

Give your answer in its simplest form.

(4 marks)

a)

$$\frac{1}{3} = \frac{3}{9}$$

$$\frac{7}{9} - \frac{3}{9} = \frac{4}{9}$$

$$\boxed{\frac{4}{9}}$$

b)

$$\frac{3}{4} \times \frac{2}{9} = \frac{6}{36}$$

Divide top and bottom by 6

$$\boxed{\frac{1}{6}}$$

13

Work out $(\frac{1}{3} + \frac{1}{6}) \div \frac{1}{4}$

(3 marks)

Brackets first

$$\begin{aligned}\frac{1}{3} + \frac{1}{6} &= \frac{2}{6} + \frac{1}{6} \\ &= \frac{3}{6} = \frac{1}{2}\end{aligned}$$

Divide by a fraction: flip it and multiply

$$\begin{aligned}\frac{1}{2} \div \frac{1}{4} &= \frac{1}{2} \times 4 \\ &= 2\end{aligned}$$

2

14

a. Work out $1\frac{3}{4} + 2\frac{5}{6}$

Give your answer as a mixed number in its simplest form.

b. Work out $2\frac{1}{2} \times 1\frac{1}{5}$

(4 marks)

a) $1\frac{3}{4} = \frac{7}{4}$ and $2\frac{5}{6} = \frac{17}{6}$. Using denominator 12: $\frac{7}{4} = \frac{21}{12}$ and $\frac{17}{6} = \frac{34}{12}$

$$a) \frac{21}{12} + \frac{34}{12} = \frac{55}{12} = 4\frac{7}{12}$$

$$b) 2\frac{1}{2} = \frac{5}{2} \text{ and } 1\frac{1}{5} = \frac{6}{5}, \text{ so } \frac{5}{2} \times \frac{6}{5} = \frac{30}{10} = 3$$

15

a. Work out $\frac{7}{8} - \frac{2}{5}$ b. Show that $1\frac{2}{3} \times 2\frac{1}{4} = 3\frac{3}{4}$

(5 marks)

a) Use denominator 40

$$\frac{7}{8} = \frac{35}{40} \text{ and } \frac{2}{5} = \frac{16}{40}$$

$$a) \frac{35}{40} - \frac{16}{40} = \frac{19}{40}$$

b) Write as improper fractions

$$1\frac{2}{3} = \frac{5}{3} \text{ and } 2\frac{1}{4} = \frac{9}{4}$$

$$b) \frac{5}{3} \times \frac{9}{4} = \frac{45}{12} = \frac{15}{4} = 3\frac{3}{4}, \text{ as required}$$

16

Tomos works out $3\frac{1}{5} - 1\frac{3}{5}$

His working is:

$$3 - 1 = 2$$

$$\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$$

Answer: $2\frac{2}{5}$

- Explain the mistake Tomos has made.
- Work out the correct answer.

(3 marks)

a)

He did $3/5 - 1/5$, the wrong way round

$1/5 - 3/5$ cannot be done without borrowing

b)

$$3\frac{1}{5} = \frac{16}{5}$$

$$1\frac{3}{5} = \frac{8}{5}$$

$$\frac{16}{5} - \frac{8}{5} = \frac{8}{5}$$

$$\boxed{1\frac{3}{5}}$$

17

a. Work out $1\frac{1}{2} + 2\frac{2}{3}$

Give your answer as a mixed number.

b. Work out $\frac{5}{6} \div \frac{2}{3}$

Give your answer as a mixed number.

(5 marks)

a.)

$$1 + 2 = 3$$

$$\frac{1}{2} + \frac{2}{3} = \frac{3}{6} + \frac{4}{6} = \frac{7}{6} = 1\frac{1}{6}$$

$$3 + 1\frac{1}{6} = 4\frac{1}{6}$$

$$\boxed{4\frac{1}{6}}$$

b.)

Flip the second fraction and multiply

$$\begin{aligned}\frac{5}{6} \div \frac{2}{3} &= \frac{5}{6} \times \frac{3}{2} \\ &= \frac{15}{12} = \frac{5}{4}\end{aligned}$$

$$\boxed{1\frac{1}{4}}$$