



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

Give your answer as a mixed number.

(2 marks)

Add the whole numbers

$$1 + 2 = 3$$

Add the fractions (denominator 6)

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

$$\boxed{3\frac{5}{6}}$$

2 Work out $5 - 2\frac{3}{8}$

Give your answer as a mixed number.

(2 marks)

Write the 5 as 4 and eight eighths

$$5 = 4\frac{8}{8}$$

$$4\frac{8}{8} - 2\frac{3}{8}$$

$$4 - 2 = 2$$

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

$$\boxed{2\frac{5}{8}}$$

3 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

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

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

4 A plank of wood is $3\frac{3}{4}$ m long. Kofi cuts a piece of length $1\frac{2}{3}$ m from it.

How long is the piece of plank that is left? Give your answer as a mixed number of metres.

(3 marks)

Subtract the lengths

$$3\frac{3}{4} - 1\frac{2}{3}$$

Improper fractions, denominator 12

$$\frac{45}{12} - \frac{20}{12} = \frac{25}{12}$$

$$\boxed{2\frac{1}{12} \text{ m}}$$

5 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

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

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

6

Mia works out $4\frac{1}{3} - 1\frac{2}{3}$. Here is her working.

$4 - 1 = 3$ and $\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$, so the answer is $3\frac{1}{3}$.

a. Explain the mistake Mia has made.

b. Work out the correct answer to $4\frac{1}{3} - 1\frac{2}{3}$.

(3 marks)

a)

Mia took $\frac{2}{3} - \frac{1}{3}$

She should do $\frac{1}{3} - \frac{2}{3}$, which cannot be done

She swapped the fractions round

b)

$$4\frac{1}{3} = \frac{13}{3}$$

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

$$\frac{13}{3} - \frac{5}{3} = \frac{8}{3}$$

$$\boxed{2\frac{2}{3}}$$

7

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

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

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

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

8

Priya makes a cake using $1\frac{3}{4}$ kg of flour and bread using $2\frac{1}{2}$ kg of flour. She starts with a 5 kg bag of flour.

- Work out the total mass of flour she uses.
- Work out the mass of flour left in the bag.

(3 marks)

a)

$$1\frac{3}{4} + 2\frac{1}{2}$$

$$1 + 2 = 3$$

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

$$3 + 1\frac{1}{4} = 4\frac{1}{4} \text{ kg}$$

b)

$$5 - 4\frac{1}{4}$$

$$= \frac{3}{4} \text{ kg}$$

$$\boxed{a) 4\frac{1}{4} \text{ kg } b) \frac{3}{4} \text{ kg}}$$

9

Work out $(1\frac{1}{2} + 2\frac{1}{4}) \div \frac{3}{4}$

(4 marks)

Brackets first

$$1\frac{1}{2} + 2\frac{1}{4} = 3\frac{3}{4} = \frac{15}{4}$$

Divide: flip and multiply

$$\frac{15}{4} \div \frac{3}{4} = \frac{15}{4} \times \frac{4}{3}$$

$$= \frac{60}{12}$$

$$\boxed{5}$$

10

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