

Reasoning and Problem Solving

Step 10: Add Fractions

National Curriculum Objectives:

Mathematics Year 5: (5F2a) [Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements \$> 1\$ as a mixed number \[for example, \$2/5 + 4/5 = 6/5 = 1 \frac{1}{5}\$ \]](#)

Mathematics Year 5: (5F4) [Add and subtract fractions with the same denominator and denominators that are multiples of the same number](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Decide whether a calculation is true or false and explain why. Denominators are the same, halves or doubles of each other.

Expected Decide whether a calculation is true or false and explain why. Denominators are multiples of the same number.

Greater Depth Decide whether a calculation is true or false and explain why. Denominators are not multiples of the same number but have common factors.

Questions 2, 5 and 8 (Problem Solving)

Developing Select two fractions that total more or less than a given amount. Denominators are the same, halves or doubles of each other.

Expected Select three fractions that total more or less than a given amount. Denominators are multiples of the same number.

Greater Depth Select three fractions that total more or less than a given amount. Denominators are not multiples of the same number but have common factors.

Questions 3, 6 and 9 (Problem Solving)

Developing Find 2 possible solutions to a fraction riddle by adding fractions. Denominators are the same, halves or doubles of each other.

Expected Find 2 possible solutions to a fraction riddle when adding fractions. Denominators are multiples of the same number.

Greater Depth Find 2 possible solutions to a fraction riddle when adding fractions. Denominators are not multiples of the same number but have common factors.

More [Year 5 Fractions](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Add Fractions

1a. Lee has added two fractions. Is he correct?

$$\frac{2}{3} + \frac{5}{6} = 1 \frac{8}{12}$$

Explain your answer.



R

Add Fractions

1b. Yasin has added two fractions. Is she correct?

$$\frac{4}{5} + \frac{9}{10} = 2 \frac{5}{10}$$

Explain your answer.



R

2a. Select 2 fractions which add up to more than or equal to $1 \frac{1}{8}$.

$$\frac{4}{8}$$

$$\frac{7}{8}$$

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

$$\frac{3}{4}$$

Find two possibilities.



PS

2b. Select 2 fractions which add up to less than $1 \frac{1}{2}$.

$$\frac{4}{6}$$

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

$$\frac{5}{6}$$

$$\frac{1}{3}$$

Find two possibilities.



PS

3a. Find 2 possible solutions to the riddle.

I have 2 proper fractions.
Their sum is greater than 1.

One denominator is double the other
and they are both single digits.

What could my fractions be?



PS

3b. Find 2 possible solutions to the riddle.

I have 2 proper fractions.
Their sum is between 1 and 2.

Each denominator is a multiple of 3
and less than 7. Both numerators are
single digits.

What could my fractions be?



PS

Add Fractions

4a. Jack has added three fractions. Is he correct?

$$\frac{3}{4} + \frac{11}{12} + \frac{7}{24} = 1 \frac{21}{24}$$

Explain your answer.



R

Add Fractions

4b. Lara has added three fractions. Is she correct?

$$\frac{3}{9} + \frac{2}{3} + \frac{12}{18} = \frac{25}{18}$$

Explain your answer.



R

5a. Select 3 fractions which add up to less than or equal to $1 \frac{1}{2}$.

| | | | |
|---------------|---------------|-----------------|----------------|
| $\frac{2}{6}$ | $\frac{2}{3}$ | $\frac{13}{24}$ | $\frac{5}{12}$ |
|---------------|---------------|-----------------|----------------|

Find two possibilities.



PS

5b. Select 3 fractions which add up to less than $1 \frac{9}{10}$.

| | | | |
|---------------|----------------|----------------|----------------|
| $\frac{2}{5}$ | $\frac{7}{10}$ | $\frac{9}{20}$ | $\frac{7}{40}$ |
|---------------|----------------|----------------|----------------|

Find two possibilities.



PS

6a. Find 2 possible solutions to the riddle.

I have 3 proper fractions.

Their sum is $\frac{1}{4}$ greater than $1 \frac{5}{8}$.

Each denominator is a different digit.

They are multiples of 2 but not of 3.

What could my fractions be?



PS

6b. Find 2 possible solutions to the riddle.

I have 3 proper fractions.

Their sum is between 1 and $1 \frac{2}{3}$.

Each denominator is a different digit and a multiple of 3.

What could my fractions be?



PS

Add Fractions

7a. Anaina has added three fractions. Is she correct?

$$\frac{2}{5} + \frac{2}{3} + \frac{5}{6} = 1\frac{3}{10}$$

Explain your answer.



R

Add Fractions

7b. Corey has added three fractions. Is he correct?

$$\frac{3}{12} + \frac{7}{9} + \frac{1}{4} = 1\frac{6}{18}$$

Explain your answer.



R

8a. Select 3 fractions to make a total between $1\frac{3}{4}$ and $1\frac{11}{12}$.

| | | | |
|---------------|---------------|---------------|----------------|
| $\frac{5}{8}$ | $\frac{2}{3}$ | $\frac{3}{6}$ | $\frac{7}{12}$ |
|---------------|---------------|---------------|----------------|

Find two possibilities.



PS

8b. Select 3 fractions to make a total between $1\frac{1}{2}$ and 2.

| | | | |
|----------------|---------------|---------------|---------------|
| $\frac{7}{10}$ | $\frac{1}{5}$ | $\frac{5}{8}$ | $\frac{3}{4}$ |
|----------------|---------------|---------------|---------------|

Find two possibilities.



PS

9a. Find 2 possible solutions to the riddle.

I have 3 proper fractions.
Their sum is $\frac{1}{28}$ greater than $1\frac{3}{7}$.

Each denominator is a
different factor of 28.

What could my fractions be?



PS

9b. Find 2 possible solutions to the riddle.

I have 3 proper fractions.
Their sum is between $1\frac{2}{5}$ and $1\frac{9}{10}$.

Each denominator is a
different factor of 20.

What could my fractions be?



PS

Reasoning and Problem Solving Add Fractions

Developing

1a. Lee is incorrect.

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

2a. Various answers, for example:

$$\frac{7}{8} + \frac{1}{4} ; \frac{3}{4} + \frac{4}{8} ; \frac{7}{8} + \frac{4}{8}$$

3a. Various answers, for example:

$$\frac{3}{4} + \frac{4}{8} ; \frac{1}{2} + \frac{3}{4} ; \frac{4}{6} + \frac{2}{3}$$

Expected

4a. Jack is incorrect.

$$\frac{3}{4} + \frac{11}{12} + \frac{7}{24} = 1 \frac{23}{24}$$

5a. 2 possible answers:

$$\frac{2}{6} + \frac{2}{3} + \frac{5}{12} \text{ or } \frac{2}{6} + \frac{13}{24} + \frac{5}{12}$$

6a. 2 possible answers:

$$\frac{1}{2} + \frac{3}{4} + \frac{5}{8} \text{ or } \frac{1}{2} + \frac{2}{4} + \frac{7}{8}$$

Greater Depth

7a. Anaina is incorrect.

$$\frac{2}{5} + \frac{2}{3} + \frac{5}{6} = 1 \frac{9}{10}$$

8a. Various answers, for example:

$$\frac{5}{8} + \frac{2}{3} + \frac{3}{6} ; \frac{2}{3} + \frac{3}{6} + \frac{7}{12} ; \frac{5}{8} + \frac{2}{3} + \frac{7}{12}$$

9a. Various answers, for example:

$$\frac{1}{2} + \frac{3}{4} + \frac{3}{14} ; \frac{1}{2} + \frac{1}{4} + \frac{10}{14} ; \frac{1}{2} + \frac{13}{14} + \frac{1}{28}$$

Reasoning and Problem Solving Add Fractions

Developing

1b. Yasin is incorrect.

$$\frac{4}{5} + \frac{9}{10} = 1 \frac{7}{10}$$

2b. Various answers, for example:

$$\frac{2}{3} + \frac{1}{3} ; \frac{5}{6} + \frac{1}{3} ; \frac{4}{6} + \frac{1}{3}$$

3b. Various answers, for example:

$$\frac{4}{6} + \frac{2}{3} ; \frac{1}{3} + \frac{5}{6} ; \frac{3}{6} + \frac{2}{3}$$

Expected

4b. Lara is incorrect.

$$\frac{3}{9} + \frac{2}{3} + \frac{12}{18} = 1 \frac{12}{18} = 1 \frac{2}{3}$$

5b. Various answers, for example:

$$\frac{2}{5} + \frac{7}{10} + \frac{9}{20} ; \frac{2}{5} + \frac{7}{10} + \frac{7}{40} ; \frac{2}{5} + \frac{9}{20} + \frac{7}{20}$$

6b. Various answers, for example:

$$\frac{1}{3} + \frac{4}{6} + \frac{4}{12} ; \frac{1}{3} + \frac{2}{6} + \frac{8}{12} ; \frac{1}{3} + \frac{4}{6} + \frac{3}{9}$$

Greater Depth

7b. Corey is incorrect.

$$\frac{3}{12} + \frac{7}{9} + \frac{1}{4} = 1 \frac{5}{18}$$

8b. 2 possible answers:

$$\frac{7}{10} + \frac{1}{5} + \frac{3}{4} ; \frac{1}{5} + \frac{5}{8} + \frac{3}{4} ; \frac{7}{10} + \frac{1}{5} + \frac{5}{8}$$

9b. Various answers, for example:

$$\frac{1}{2} + \frac{2}{4} + \frac{3}{5} ; \frac{1}{2} + \frac{1}{5} + \frac{9}{10} ; \frac{1}{2} + \frac{3}{4} + \frac{4}{10}$$