Reasoning and Problem Solving
Step 6: Add 2 or More Fractions

National Curriculum Objectives:

Mathematics Year 4: (4F4) Add and subtract fractions with the same denominator

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Use digit cards to complete a calculation adding 2 or more fractions with the same denominator where answers are less than 1.
Expected Use digit cards to complete a calculation adding 2 or more fractions with the same denominator where answers are greater than 1.
Greater Depth Use digit cards to complete a calculation adding two or more fractions where answers are greater than 1. Using some fractions with denominators that are double or half of the previous fraction. Answers expressed as improper fractions.

Questions 2, 5 and 8 (Problem Solving)
Developing Use the fraction cards to reach a given target by adding 2 or more fractions with the same denominator where answers are less than 1.
Expected Use the fraction cards to reach a given target by adding 2 or more fractions with the same denominator where answers are greater than 1.
Greater Depth Use the fraction cards to reach a given target by adding two or more fractions where answers are greater than 1. Using some fractions with denominators that are double or half of the previous fraction. Answers expressed as improper fractions and mixed numbers.

Questions 3, 6 and 9 (Reasoning)
Developing Identify missing numbers to explain which statement is correct when adding 2 or more fractions with the same denominator where answers are less than 1.
Expected Identify missing numbers to explain which statement is correct when adding 2 or more fractions with the same denominator where answers are greater than 1.
Greater Depth Identify missing numbers to explain which statement is correct when adding two or more fractions where answers are greater than 1. Using some fractions with denominators that are double or half of the previous fraction. Answers expressed as improper fractions.

More Year 4 Fractions resources.

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Add 2 or More Fractions

1a. Use the digit cards to complete the calculations so that they equal $\frac{10}{12}$.

A. $\frac{3}{12} + \frac{5}{12} + \frac{\square}{12}$

B. $\frac{\square}{12} + \frac{6}{\square} + \frac{1}{12}$

3 2 12

D PS

1b. Use the digit cards to complete the calculations so that they equal $\frac{14}{15}$.

A. $\frac{7}{15} + \frac{\square}{\square} + \frac{2}{15}$

B. $\frac{6}{15} + \frac{\square}{15} + \frac{5}{15}$

3 5 15

D PS

2a. Using at least two of the fraction cards, create an addition calculation to equal the target fraction.

D PS

2b. Using at least two of the fraction cards, create an addition calculation to equal the target fraction.

D PS

3a. Steph and Jake are finding missing numbers in a calculation.

$\frac{4}{10} + \frac{3}{10} + \frac{2}{10} = \frac{\square}{\square}$

Steph: I think the answer is $\frac{9}{30}$.

Jake: I think the answer is $\frac{9}{10}$.

Who is correct? Explain how you know.

D R

3b. Sinead and Johnny are finding missing numbers in a calculation.

$\frac{7}{20} + \frac{5}{20} + \frac{\square}{\square} = \frac{19}{20}$

Sinead: The missing fraction is $\frac{7}{20}$.

Johnny: The missing fraction is $\frac{7}{40}$.

Who is correct? Explain how you know.

D R

Add 2 or More Fractions

4a. Use the digit cards to complete the calculations so that they equal $\frac{15}{7}$.

A. $\frac{\square}{7} + \frac{5}{7} + \frac{\square}{7}$

B. $\frac{\square}{7} + \frac{\square}{7} + \frac{\square}{7}$

3	2	4	9	7

E PS

Add 2 or More Fractions

4b. Use the digit cards to complete the calculations so that they equal $\frac{21}{11}$.

A. $\frac{\square}{11} + \frac{5}{\square} + \frac{\square}{11}$

B. $\frac{9}{11} + \frac{\square}{11} + \frac{\square}{11}$

5	11	12	7	4

E PS

5a. Using at least two of the fraction cards, create two addition calculations to equal the target fraction.

E PS

5b. Using at least two of the fraction cards, create two addition calculations to equal the target fraction.

E PS

6a. Chuan and Sam are finding missing numbers in a calculation.

$\frac{3}{7} + \frac{\square}{7} + \frac{\square}{7} = \frac{12}{7}$

Chuan: $\frac{5}{7}$ and $\frac{4}{7}$ are missing.

Sam: $\frac{6}{7}$ and $\frac{3}{7}$ are missing.

Who is correct? Explain how you know.

E R

6b. Hafsa and Cian are finding missing numbers in a calculation.

$\frac{\square}{10} + \frac{3}{10} + \frac{\square}{10} = \frac{15}{10}$

Hafsa: $\frac{5}{10}$ and $\frac{7}{10}$ are missing.

Cian: $\frac{6}{10}$ and $\frac{7}{10}$ are missing.

Who is correct? Explain how you know.

E R

Add 2 or More Fractions

7a. Use the digit cards to complete the calculations so that they equal $\frac{22}{12}$.

A. $\frac{2}{3} + \frac{4}{6} + \frac{\square}{6}$

B. $\frac{14}{\square} + \frac{\square}{3} + \frac{\square}{6}$

1	7	2	5	9	3	12

GD PS

Add 2 or More Fractions

7b. Use the digit cards to complete the calculations so that they equal $2\frac{6}{8}$.

A. $\frac{\square}{8} + \frac{5}{4} + \frac{10}{\square}$

B. $\frac{10}{\square} + \frac{3}{4} + \frac{\square}{8}$

9	16	2	11	15	8	7

GD PS

8a. Using at least two of the fraction cards, create two addition calculations to equal the target fraction.

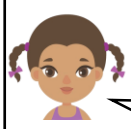
GD PS

8b. Using at least two of the fraction cards, create two addition calculations to equal the target fraction.

GD PS

9a. Isabel and Hannah are finding missing numbers in a calculation.

$\frac{4}{7} + \frac{\square}{14} + \frac{\square}{7} = 2\frac{6}{7}$



Isabel: $\frac{10}{14}$ and $\frac{6}{7}$ are missing.

Hannah: $\frac{24}{14}$ and $\frac{4}{7}$ are missing.

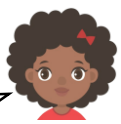
Who is correct? Explain how you know.

GD R

9b. Josh and Kelly are finding missing numbers in a calculation.

$\frac{\square}{16} + \frac{28}{32} + \frac{8}{\square} = \frac{35}{16}$

Josh: $\frac{5}{16}$ and $\frac{8}{8}$ are missing.



Kelly: $\frac{13}{16}$ and $\frac{8}{16}$ are missing.

Who is correct? Explain how you know.

GD R

Reasoning and Problem Solving
Add 2 or More Fractions

Developing

1a. A. $\frac{3}{12} + \frac{5}{12} + \boxed{\frac{2}{12}}$

B. $\boxed{\frac{3}{12}} + \frac{6}{\boxed{12}} + \frac{1}{12}$

2a. $\frac{2}{9} + \frac{5}{9}$ or $\frac{3}{9} + \frac{4}{9}$

3a. Jake is correct because Steph has added the denominators as well as the numerators.

Expected

4a. A. $\boxed{\frac{7}{7}} + \frac{5}{7} + \boxed{\frac{3}{7}}$

B. $\boxed{\frac{2}{7}} + \boxed{\frac{4}{7}} + \boxed{\frac{9}{7}}$

5a. $\frac{10}{5} + \frac{6}{5} + \frac{2}{5}$ and $\frac{10}{5} + \frac{8}{5}$

6a. They are both correct because both calculations add up to $\frac{12}{7}$.

Greater Depth

7a. A. $\frac{2}{3} + \frac{4}{6} + \boxed{\frac{3}{6}}$

B. $\frac{14}{\boxed{12}} + \boxed{\frac{1}{3}} + \boxed{\frac{2}{6}}$

8a. $\frac{6}{5} + \frac{7}{5} + \frac{2}{20}$ and $\frac{6}{5} + \frac{30}{20}$

9a. Hannah is correct because Isabel's calculation will equal $\frac{15}{7}$.

Reasoning and Problem Solving
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Developing

1b. A. $\frac{7}{15} + \boxed{\frac{5}{15}} + \frac{2}{15}$

B. $\frac{6}{15} + \boxed{\frac{3}{15}} + \frac{5}{15}$

2b. $\frac{7}{16} + \frac{4}{16}$ or $\frac{1}{16} + \frac{3}{16} + \frac{7}{16}$

3b. Sinead is correct because she has added only the numerators.

Expected

4b. A. $\boxed{\frac{4}{11}} + \frac{5}{\boxed{11}} + \boxed{\frac{12}{11}}$

B. $\frac{9}{11} + \boxed{\frac{7}{11}} + \boxed{\frac{5}{11}}$

5b. $\frac{11}{12} + \frac{8}{12}$ and $\frac{3}{12} + \frac{5}{12} + \frac{11}{12}$

6b. Hafsa is correct because Cian's calculation adds up to $\frac{16}{10}$.

Greater Depth

7b. A. $\boxed{\frac{2}{8}} + \frac{5}{4} + \frac{10}{\boxed{8}}$

B. $\frac{10}{\boxed{16}} + \frac{3}{4} + \boxed{\frac{11}{16}}$

8b. $\frac{28}{24} + \frac{15}{6}$ and $\frac{10}{12} + \frac{2}{6} + \frac{15}{6}$

9b. Both Josh and Kelly are correct because each calculation has a total of $\frac{35}{16}$ once they are converted.