Reasoning and Problem Solving
Step 9: Mixed Addition and Subtraction

National Curriculum Objectives:

Mathematics Year 6: (6F2) Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Mathematics Year 6: (6F3) Compare and order fractions, including fractions > 1
Mathematics Year 6: (6F4) Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Mathematics Year 6: (6F11) Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Solve the calculations to identify the correct statement (denominators are direct multiples of the same number).
Expected Solve the calculations to identify the correct statement (denominators are not always direct multiples of the same number).
Greater Depth Solve the calculations to identify the correct statement (denominators are not direct multiples of the same number).

Questions 2, 5 and 8 (Problem Solving)
Developing Fill in missing values on a cross puzzle (denominators are direct multiples of the same number).
Expected Fill in missing values on a cross puzzle (denominators are not always direct multiples of the same number).
Greater Depth Fill in missing values on a cross puzzle (denominators are not direct multiples of the same number).

Questions 3, 6 and 9 (Reasoning)
Developing Identify and correct errors using knowledge of mixed numbers and improper fractions (denominators are direct multiples of the same number).
Expected Identify and correct errors using knowledge of mixed numbers and improper fractions (denominators are not always direct multiples of the same number).
Greater Depth Identify and correct errors using knowledge of mixed numbers and improper fractions (denominators are not direct multiples of the same number).

More Year 6 Fractions resources.

Did you like this resource? Don't forget to review it on our website.

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Mixed Addition and Subtraction

1a. Anna and Tom are discussing the calculation below.

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

If I change the calculation to $4\frac{2}{8} + 1\frac{1}{2}$ the answer will be the same.

Anna

If I change the calculation to $2\frac{2}{4} + 3\frac{4}{8}$ the answer will be the same.

Tom

Who is correct? Prove it.

D

R

1b. Steph and Will are discussing the calculation below.

$6\frac{7}{10} - 2\frac{3}{5} = 4\frac{1}{10}$

If I change the calculation to $6\frac{4}{5} - 2\frac{3}{10}$ the answer will be the same.

Steph

If I change the calculation to $10\frac{14}{20} - 6\frac{6}{10}$ the answer will be the same.

Will

Who is correct? Prove it.

D

R

2a. Find the missing values.

	$\frac{3}{4}$		
$6\frac{\square}{8}$	$2\frac{1}{4}$	$1\frac{4}{16}$	$= 9\frac{3}{4}$
	$\square\frac{1}{2}$		
	$= 4\frac{1}{2}$		

D

PS

2b. Find the missing values.

	$10\frac{23}{24}$		
$2\frac{1}{4}$	$5\frac{3}{8}$	$1\frac{\square}{4}$	$= 8\frac{7}{8}$
	$3\frac{1}{12}$		
	$= 2\frac{\square}{2}$		

D

PS

3a. Tia completed this calculation:

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

Is she correct?

Prove it.

D

R

3b. Benji completed this calculation:

$$\frac{5}{4} + 1\frac{4}{8} = 1\frac{6}{8}$$

Is he correct?

Prove it.

D

R

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Mixed Addition and Subtraction

4a. Ross and Grace are discussing the calculation below.

$$4\frac{1}{6} + 4\frac{1}{2} = 8\frac{4}{6}$$

Ross

If I change the calculation to $5\frac{1}{3} + 3\frac{2}{6}$ the answer will be the same.

If I change the calculation to $\frac{19}{4} + \frac{25}{6}$ the answer will be the same.

Grace

Who is correct? Prove it.

E R

4b. Chris and Jess are discussing the calculation below.

$$8\frac{1}{3} - 4\frac{2}{5} = 3\frac{14}{15}$$

Chris

If I change the calculation to $5\frac{3}{4} - 2\frac{4}{10}$ the answer will be the same.

If I change the calculation to $\frac{25}{3} - \frac{22}{5}$ the answer will be the same.

Jess

Who is correct? Prove it.

E R

5a. Find the missing values.

	$1\frac{3}{5}$	
$10\frac{\square}{4}$	$6\frac{1}{8}$	$2\frac{3}{12}$
	$\square\frac{3}{4}$	

$= 2\frac{9}{24}$

$= 9\frac{19}{40}$

E PS

5b. Find the missing values.

	$12\frac{4}{5}$	
$7\frac{\square}{5}$	$1\frac{1}{9}$	$7\frac{1}{5}$
	$7\frac{2}{5}$	

$= 15\frac{32}{45}$

$= 4\frac{\square}{45}$

E PS

6a. Martin completed this calculation:

$$2\frac{9}{12} + \frac{5}{4} + 1\frac{1}{3} = 4\frac{1}{4}$$

Is he correct?

Prove it.

E R

6b. Rachael completed this calculation:

$$7\frac{4}{5} - \frac{15}{10} - 1\frac{2}{10} = 5\frac{1}{10}$$

Is she correct?

Prove it.

E R

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Mixed Addition and Subtraction

7a. Dan and Tina are discussing the calculation below.

$$6\frac{4}{8} + 5\frac{3}{9} = 11\frac{5}{6}$$

Dan: If I change the calculation to $8\frac{11}{12} + 2\frac{8}{9}$ the answer will be the same.

Tina: If I change the calculation to $2\frac{4}{12} + 9\frac{2}{4}$ the answer will be the same.

Who is correct? Prove it.

GD R

7b. Rob and Aisha are discussing the calculation below.

$$\frac{58}{7} - \frac{28}{12} = 5\frac{20}{21}$$

Rob: If I change the calculation to $8\frac{2}{7} - 2\frac{2}{6}$ the answer will be the same.

Aisha: If I change the calculation to $\frac{71}{7} - \frac{17}{3}$ the answer will be the same.

Who is correct? Prove it.

GD R

8a. Find the missing values.

	$\square\frac{11}{12}$		
$2\frac{4}{9}$	$6\frac{1}{3}$	$\square\frac{1}{3}$	$= 13\frac{1}{9}$
	$2\frac{1}{4}$		

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

GD PS

8b. Find the missing values.

	$9\frac{4}{5}$		
$13\frac{1}{7}$	$4\frac{2}{7}$	$\square\frac{2}{5}$	$= 25\frac{29}{35}$
	$\square\frac{1}{7}$		

$= 1\frac{13}{35}$

GD PS

9a. Paddy completed this calculation:

$$7\frac{6}{7} - \frac{1}{4} - 3\frac{1}{2} = 4\frac{3}{28}$$

Is he correct?

Prove it.

GD R

9b. Marta completed this calculation:

$$12\frac{7}{9} + \frac{1}{3} + 3\frac{1}{6} = 16\frac{7}{18}$$

Is she correct?

Prove it.

GD R

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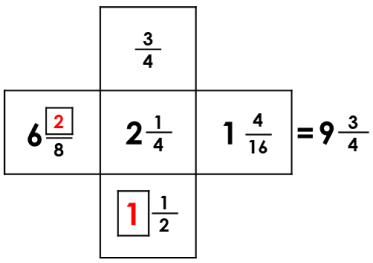
Reasoning and Problem Solving
Mixed Addition and Subtraction

Developing

1a. Anna is correct because:

$4\frac{2}{8} + 1\frac{1}{2} = 5\frac{3}{4}$

2a.



3a. Tia is incorrect because:

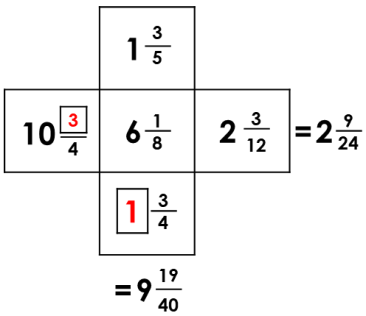
$\frac{13}{12} + \frac{22}{12} = \frac{35}{12} = 2\frac{11}{12}$

Expected

4a. Ross is correct because:

$5\frac{1}{3} + 3\frac{2}{6} = 8\frac{4}{6}$

5a.



6a. Martin is incorrect because:

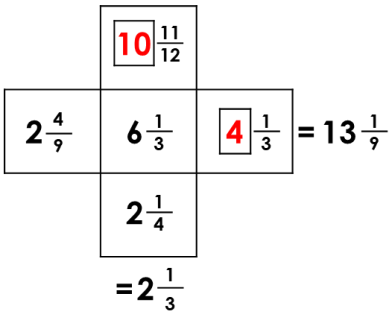
$\frac{33}{12} + \frac{15}{12} + \frac{16}{12} = \frac{64}{12} = 5\frac{4}{12} = 5\frac{1}{3}$

Greater Depth

7a. Tina is correct because:

$2\frac{4}{12} + 9\frac{2}{4} = 11\frac{5}{6}$

8a.



9a. Paddy is correct because:

$\frac{220}{28} - \frac{7}{28} - \frac{98}{28} = \frac{115}{28} = 4\frac{3}{28}$

Reasoning and Problem Solving
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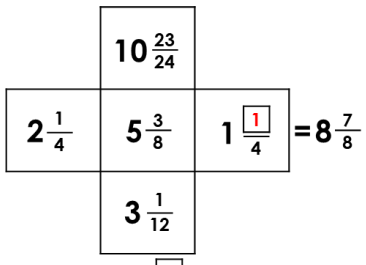
Developing

1b. Will is correct because:

$10\frac{14}{20} - 6\frac{6}{10} = 4\frac{1}{10}$

2b.



3b. Benji is incorrect because:

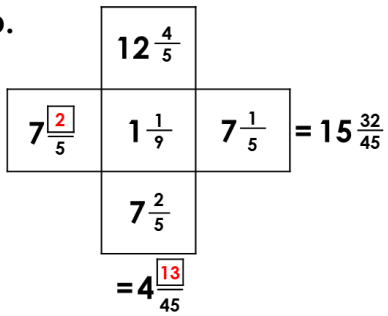
$\frac{10}{8} + \frac{12}{8} = \frac{22}{8} = 2\frac{6}{8}$

Expected

4b. Jess is correct because:

$\frac{25}{3} - \frac{22}{5} = 8\frac{1}{3} - 4\frac{2}{5} = 3\frac{14}{15}$

5b.



6b. Rachael is correct because:

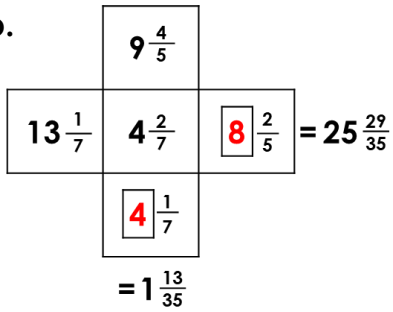
$\frac{78}{10} - \frac{15}{10} - \frac{12}{10} = \frac{51}{10} = 5\frac{1}{10}$

Greater Depth

7b. Rob is correct because:

$8\frac{2}{7} - 2\frac{2}{6} = 5\frac{20}{21}$

8b.



9b. Marta is incorrect because:

$\frac{230}{18} + \frac{6}{18} + \frac{57}{18} = \frac{293}{18} = 16\frac{5}{18}$

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