

# Reasoning and Problem Solving

## Step 8: Subtract from Whole Amounts

### 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 the numbers to create 2 number sentences subtracting from whole amounts. Includes subtracting unit fractions and some non unit fractions (thirds, quarters, fifths and tenths).

**Expected** Use the numbers to create 3 number sentences subtracting from whole amounts sometimes expressed as an improper fraction. Includes subtracting non unit fractions.

**Greater Depth** Use the numbers to create 3 number sentences subtracting from whole amounts sometimes expressed as an improper fraction. Includes subtracting non unit fractions with different denominators (need simplifying), improper fractions and mixed numbers.

Questions 2, 5 and 8 (Reasoning)

**Developing** Find the odd one out when subtracting by whole amounts. Includes subtracting unit fractions and some non unit fractions (thirds, quarters, fifths and tenths).

**Expected** Find the odd one out when subtracting by whole amounts sometimes expressed as an improper fraction. Includes subtracting non unit fractions.

**Greater Depth** Find the odd one out when subtracting by whole amounts sometimes expressed as an improper fraction. Includes subtracting non unit fractions with different denominators (need simplifying), improper fractions and mixed numbers.

Questions 3, 6 and 9 (Reasoning)

**Developing** Explain if a statement is correct by subtracting from whole amounts. Includes subtracting unit fractions and some non unit fractions (thirds, quarters, fifths and tenths).

**Expected** Explain if a statement is correct by subtracting from whole amounts. Includes subtracting non unit fractions.

**Greater Depth** Explain if a statement is correct by subtracting from whole amounts. Includes subtracting non unit fractions with different denominators (need simplifying), improper fractions and mixed numbers.

More [Year 4 Fractions](#) resources.

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## Subtract from Whole Amounts

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1a. Use the numbers below to write subtraction number sentences.

$$\frac{1}{7}$$

2

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

3

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

$$1\frac{6}{7}$$

Find 2 possibilities.



PS

1b. Use the numbers below to write subtraction number sentences.

$$\frac{2}{5}$$

3

$$2\frac{8}{9}$$

2

$$\frac{1}{9}$$

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

Find 2 possibilities.



PS

2a. Circle the odd one out.

A.  $3 - \frac{1}{9} = 2\frac{8}{9}$

B.  $2 - \frac{1}{6} = 1\frac{1}{6}$

C.  $4 - \frac{2}{3} = 3\frac{1}{3}$

Explain your reasoning.



R

2b. Circle the odd one out.

A.  $4 - \frac{1}{6} = 3\frac{5}{6}$

B.  $3 - \frac{7}{10} = 2\frac{3}{10}$

C.  $2 - \frac{1}{7} = 2\frac{6}{7}$

Explain your reasoning.



R

3a. Mrs Hill makes 2 giant waffles for breakfast.

She eats  $\frac{1}{5}$  of a waffle.

Her son also eats  $\frac{1}{5}$ .

Mrs Hill says,



I have  $\frac{3}{5}$  of a waffle left.

Is she correct? Prove it.



R

3b. Mr Johnson has 2 sandwiches left over from a picnic.

He eats  $\frac{1}{4}$  of a sandwich.

His wife also eats  $\frac{1}{4}$ .

Mr Jones says,



I have  $1\frac{2}{4}$  sandwiches left.

Is he correct? Prove it.



R

## Subtract from Whole Amounts

## Subtract from Whole Amounts

4a. Use the numbers below to write subtraction number sentences.

4

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

$$5\frac{2}{9}$$

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

5

$$3\frac{7}{9}$$

$$\frac{2}{9}$$

$$\frac{54}{9}$$

$$4\frac{5}{9}$$

Find 3 possibilities.



PS

4b. Use the numbers below to write subtraction number sentences.

3

$$\frac{4}{7}$$

$$4\frac{4}{7}$$

$$\frac{3}{7}$$

6

$$5\frac{3}{7}$$

$$\frac{2}{7}$$

$$\frac{35}{7}$$

$$2\frac{5}{7}$$

Find 3 possibilities.



PS

5a. Circle the odd one out.

A.  $4 - \frac{5}{6}$

B.  $3 - \frac{5}{6}$

C.  $\frac{24}{6} - \frac{5}{6}$

Explain your reasoning.



R

5b. Circle the odd one out.

A.  $6 - \frac{7}{8}$

B.  $5 - \frac{7}{8}$

C.  $\frac{40}{8} - \frac{7}{8}$

Explain your reasoning.



R

6a. Mrs Stevens has 2 cakes left over from a bake sale.

She eats  $\frac{4}{11}$  of a cake.

Her husband eats  $\frac{6}{11}$ .

Mrs Stevens says,



I have  $\frac{1}{11}$  of a cake left.

Is she correct? Prove it.



R

6b. Mr Jacobs has 3 pizzas left over from a party.

He eats  $\frac{5}{12}$  of a pizza.

His daughter eats  $\frac{6}{12}$ .

Mr Jacobs says,



I have  $1\frac{1}{12}$  pizzas left.

Is he correct? Prove it.



R

## Subtract from Whole Amounts

## Subtract from Whole Amounts

7a. Use the numbers below to write subtraction number sentences.

9

$$\frac{17}{7}$$

$$5\frac{5}{7}$$

$$\frac{11}{7}$$

8

$$8\frac{3}{7}$$

$$\frac{70}{7}$$

$$\frac{23}{7}$$

$$5\frac{4}{7}$$

Find 3 possibilities.



PS

7b. Use the numbers below to write subtraction number sentences.

8

$$\frac{25}{9}$$

$$4\frac{5}{9}$$

$$\frac{81}{9}$$

7

$$6\frac{2}{9}$$

$$\frac{32}{9}$$

$$\frac{22}{9}$$

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

Find 3 possibilities.



PS

8a. Circle the odd one out.

A.  $7 - \frac{13}{9}$

B.  $8 - 2\frac{8}{18}$

C.  $\frac{81}{9} - \frac{22}{9}$

Explain your reasoning.



R

8b. Circle the odd one out.

A.  $9 - \frac{40}{7}$

B.  $6 - 3\frac{10}{14}$

C.  $\frac{49}{7} - \frac{33}{7}$

Explain your reasoning.



R

9a. Miss Chen buys 5 packets of biscuits from the shop.

She eats  $\frac{15}{36}$  of a packet.

Her mum eats  $\frac{44}{48}$ .

Miss Chen says,



I have  $3\frac{1}{3}$  packets left.

Is she correct? Prove it.



R

9b. Mr Williams makes 6 pancakes for lunch.

He eats  $\frac{30}{55}$  of a pancake.

His brother eats  $\frac{14}{22}$ .

Mr Williams says,



I have  $5\frac{9}{11}$  pancakes left.

Is he correct? Prove it.



R

## Reasoning and Problem Solving

### Subtract from Whole Amounts

#### Developing

1a.  $2 - \frac{1}{7} = 1 \frac{6}{7}$ ,  $3 - \frac{3}{4} = 2 \frac{1}{4}$

2a. B is the odd one out because it has the only incorrect answer.  $2 - \frac{1}{6} = 1 \frac{5}{6}$

3a. Mrs Hill is not correct because

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

#### Expected

4a.  $4 - \frac{2}{9} = 3 \frac{7}{9}$ ,  $5 - \frac{4}{9} = 4 \frac{5}{9}$ ,  
 $\frac{54}{9} - \frac{7}{9} = 5 \frac{2}{9}$

5a. B is the odd one out because  $4 = \frac{24}{6}$

so A and C are equivalent.

6a. Mrs Stevens is not correct because

$$2 - \frac{10}{11} = 1 \frac{1}{11}.$$

#### Greater Depth

7a.  $8 - \frac{17}{7} = 5 \frac{4}{7}$ ,  $9 - \frac{23}{7} = 5 \frac{5}{7}$ ,  
 $\frac{70}{7} - \frac{11}{7} = 8 \frac{3}{7}$

8a. C is the odd one out because A and B have the same answer of  $5 \frac{5}{9}$ .  $C = 6 \frac{5}{9}$

9a. Miss Chen is not correct because

$$5 - 1 \frac{4}{12} = 3 \frac{2}{3}.$$

## Reasoning and Problem Solving

### Subtract from Whole Amounts

#### Developing

1b.  $3 - \frac{1}{9} = 2 \frac{8}{9}$ ,  $2 - \frac{2}{5} = 1 \frac{3}{5}$

2b. C is the odd one out because it has the only incorrect answer.  $2 - \frac{1}{7} = 1 \frac{6}{7}$

3b. Mr Johnson is correct because

$$2 - \frac{2}{4} = 1 \frac{2}{4}.$$

#### Expected

4b.  $3 - \frac{2}{7} = 2 \frac{5}{7}$ ,  $6 - \frac{4}{7} = 5 \frac{3}{7}$ ,  
 $\frac{35}{7} - \frac{3}{7} = 4 \frac{4}{7}$

5b. A is the odd one out because  $5 = \frac{40}{8}$

so B and C are equivalent.

6b. Mr Jacobs is not correct because

$$3 - \frac{11}{12} = 2 \frac{1}{12}.$$

#### Greater Depth

7b.  $7 - \frac{22}{9} = 4 \frac{5}{9}$ ,  $8 - \frac{32}{9} = 4 \frac{4}{9}$ ,  
 $\frac{81}{9} - \frac{25}{9} = 6 \frac{2}{9}$

8b. A is the odd one out because B and C have the same answer of  $2 \frac{2}{7}$ .  $A = 3 \frac{2}{7}$

9b. Mr Williams is not correct because

$$6 - 1 \frac{2}{11} = 4 \frac{9}{11}.$$