

Reasoning and Problem Solving

Step 3: Equivalent Fractions 2

National Curriculum Objectives:

Mathematics Year 4: (4F2) [Recognise and show, using diagrams, families of common equivalent fractions](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Identify and explain which fraction is the odd one out. Includes 3 options that only double the starting fraction.

Expected Identify and explain which fraction is the odd one out. Includes 6 options where denominators are multiples of the starting fraction.

Greater Depth Identify and explain which fraction is the odd one out. Includes 6 options where denominators share a common factor.

Questions 2, 5 and 8 (Problem Solving)

Developing Create two equivalent fractions using digit cards. Includes doubling the starting fraction only.

Expected Create three equivalent fractions using digit cards. Includes denominators which are multiples of the starting fraction.

Greater Depth Create three equivalent fractions using digit cards. Includes denominators which share a common factor.

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether a statement about an equivalent fraction is correct. Includes doubling the starting fraction only.

Expected Explain whether a statement about equivalent fractions is correct. Includes two fractions where denominators are multiples of the starting fraction.

Greater Depth Explain whether a statement about equivalent fractions is correct. Includes three fractions where denominators share a common factor.

More [Year 4 Fractions](#) resources.

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Equivalent Fractions 2

Equivalent Fractions 2

1a. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

$$\frac{2}{6} \quad \frac{1}{3} \quad \frac{2}{12}$$

Explain the reasons for your groupings.



R

1b. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

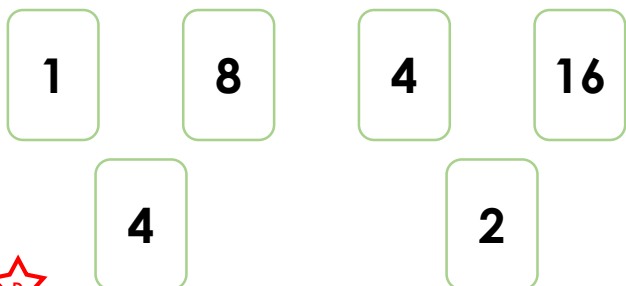
$$\frac{2}{10} \quad \frac{3}{20} \quad \frac{1}{5}$$

Explain the reasons for your groupings.



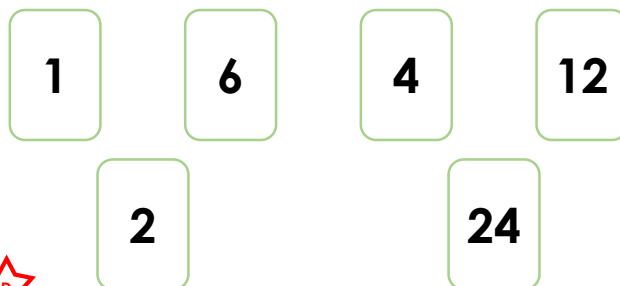
R

2a. Using the digit cards below, create two equivalent fractions.



PS

2b. Using the digit cards below, create two equivalent fractions.



PS

3a. Grace is looking at the fractions below.

$$\frac{1}{5} = \frac{3}{10}$$

The two fractions are equivalent.



Grace

Is she correct? Convince me.



R

3b. Daniel is looking at the fractions below.

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

The two fractions are not equivalent.



Daniel

Is he correct? Convince me.



R

Equivalent Fractions 2

4a. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

$$\frac{2}{10} \quad \frac{3}{5} \quad \frac{2}{25}$$

$$\frac{4}{20} \quad \frac{9}{15}$$

Explain the reasons for your groupings.



R

Equivalent Fractions 2

4b. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

$$\frac{5}{15} \quad \frac{6}{30} \quad \frac{4}{12}$$

$$\frac{1}{6} \quad \frac{3}{18}$$

Explain the reasons for your groupings.



R

5a. Using the digit cards below, create three equivalent fractions.

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

3	9	6	12
2	5	4	



PS

5b. Using the digit cards below, create three equivalent fractions.

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

6	20	15	12
9	8	10	



PS

6a. Fraser is looking at the fractions below.

$$\frac{1}{4} = \frac{9}{12}$$

The fractions are equivalent because 8 has been added to the numerator and the denominator.



Fraser

Is he correct? Convince me.



R

6b. Kira is looking at the fractions below.

$$\frac{3}{4} = \frac{21}{32}$$

The fractions are not equivalent. The numerator and denominator have not been multiplied by the same number.



Kira

Is she correct? Convince me.



R

Equivalent Fractions 2

7a. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

$$\frac{4}{28} \quad \frac{8}{56} \quad \frac{6}{36}$$

$$\frac{9}{49} \quad \frac{3}{18} \quad \frac{5}{35}$$

Explain the reasons for your groupings.



R

Equivalent Fractions 2

7b. Use your knowledge of equivalent fractions to group the fractions below and find the odd one out.

$$\frac{18}{24} \quad \frac{6}{54} \quad \frac{24}{36}$$

$$\frac{39}{52} \quad \frac{12}{16} \quad \frac{3}{27}$$

Explain the reasons for your groupings.



R

8a. Using the digit cards below, create three equivalent fractions.

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

4 1 10 7 14

12 21 30 8



PS

8b. Using the digit cards below, create three equivalent fractions.

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

12 10 20 15 4

25 24 5 7



PS

9a. Finn is looking at the fractions below.

$$\frac{6}{18} = \frac{9}{21} = \frac{12}{33}$$

All three fractions are equal because the numerators and denominators are all divisible by 3.



Finn

Is he correct? Convince me.



R

9b. Phoebe is looking at the fractions below.

$$\frac{9}{12} = \frac{15}{20} = \frac{21}{28}$$

The fractions are all equal because they are equivalent to $\frac{6}{8}$.



Phoebe

Is she correct? Convince me.



R

Reasoning and Problem Solving Equivalent Fractions 2

Developing

- 1a. $\frac{2}{12}$ is the odd one out because $\frac{2}{6}$ and $\frac{1}{3}$ can be grouped as equivalents.
- 2a. Various answers, for example: $\frac{1}{4}$, $\frac{2}{8}$
- 3a. Grace is incorrect because $\frac{1}{5}$ is not equivalent to $\frac{3}{10}$. It is equivalent to $\frac{2}{10}$.

Expected

- 4a. $\frac{2}{10}$ and $\frac{4}{20}$ are grouped because they are equivalent, $\frac{3}{5}$ and $\frac{9}{15}$ are grouped because they are equivalent so $\frac{2}{25}$ is the odd one out.
- 5a. $\frac{2}{6}$; $\frac{3}{9}$; $\frac{4}{12}$
- 6a. Fraser is incorrect because the numerator and denominator need to be multiplied by 8 to be equivalent, rather than have 8 added.

Greater Depth

- 7a. $\frac{4}{28}$, $\frac{5}{35}$ and $\frac{8}{56}$ are grouped because they are equivalent, $\frac{6}{36}$ and $\frac{3}{18}$ are grouped because they are equivalent so $\frac{9}{49}$ is the odd one out.
- 8a. $\frac{4}{12}$; $\frac{10}{30}$; $\frac{7}{21}$
- 9a. Finn is incorrect. Although all of the numbers are divisible by 3, this does not mean they are equivalent.

Reasoning and Problem Solving Equivalent Fractions 2

Developing

- 1b. $\frac{3}{20}$ is the odd one out because $\frac{2}{10}$ and $\frac{1}{5}$ can be grouped as equivalents.
- 2b. Various answers, for example: $\frac{1}{6}$, $\frac{2}{12}$
- 3b. Daniel is correct because $\frac{2}{6}$ is not equivalent to $\frac{5}{12}$. It is equivalent to $\frac{4}{12}$.

Expected

- 4b. $\frac{5}{15}$ and $\frac{4}{12}$ are grouped because they are equivalent, $\frac{1}{6}$ and $\frac{3}{18}$ are grouped because they are equivalent so $\frac{6}{30}$ is the odd one out.
- 5b. $\frac{6}{9}$; $\frac{8}{12}$; $\frac{10}{15}$
- 6b. Kira is correct. The numerator has been multiplied by 7 and the denominator has been multiplied by 8. An equivalent fraction to $\frac{3}{4}$ could be $\frac{24}{32}$.

Greater Depth

- 7b. $\frac{12}{16}$, $\frac{18}{24}$ and $\frac{39}{52}$ are grouped because they are equivalent, $\frac{3}{27}$ and $\frac{6}{54}$ are grouped because they are equivalent so $\frac{24}{36}$ is the odd one out.
- 8b. $\frac{4}{5}$; $\frac{12}{15}$; $\frac{20}{25}$
- 9b. Phoebe is correct because all three fractions can be simplified to $\frac{3}{4}$ which is equivalent to $\frac{6}{8}$.