

Reasoning and Problem Solving

Step 12: Divide Fractions by Integers 1

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: (6F5b) [Divide proper fractions by whole numbers \[for example, \$\frac{1}{3} \div 2 = \frac{1}{6}\$ \]](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Find the missing digit that the calculations have in common when dividing fractions by integers where the numerator is the first or second multiple of the divisor.

Expected Find the missing digit that the calculations have in common when dividing fractions by integers where the numerator is up to the fifth multiple of the divisor.

Greater Depth Find the missing digit that the calculations have in common when dividing mixed numbers and improper fractions by integers where the numerator is up to the tenth multiple of the divisor.

Questions 2, 5 and 8 (Reasoning)

Developing Decide whether a calculation is correct and explain why when dividing fractions by integers where the numerator is the first or second multiple of the divisor.

Expected Decide whether a calculation is correct and explain why when dividing mixed numbers by integers where the numerator is up to the fifth multiple of the divisor.

Greater Depth Decide whether a calculation is correct and explain why when dividing mixed or improper fractions by integers where the numerator is up to the tenth multiple of the divisor. Calculations will need to be simplified.

Questions 3, 6 and 9 (Problem Solving)

Developing Solve word problems when dividing fractions by integers where the numerator is the first or second multiple of the divisor.

Expected Solve word problems when dividing fractions by integers where the numerator is up to the fifth multiple of the divisor.

Greater Depth Solve word problems when dividing fractions by integers where the numerator is up to the tenth multiple of the divisor. Fractions are represented as either mixed numbers or improper fractions.

More [Year 6 Fractions](#) resources.

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Divide Fractions by Integers 1

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1a. The missing digit in all the calculations is the same. Find the missing number.

A. $\frac{4}{\square} \div 2 = \frac{2}{6}$

B. $\frac{12}{15} \div \square = \frac{2}{15}$

C. $\frac{\square}{7} \div 3 = \frac{2}{7}$



PS

1b. The missing digit in all the calculations is the same. Find the missing number.

A. $\frac{10}{\square} \div 5 = \frac{2}{12}$

B. $\frac{24}{30} \div \square = \frac{2}{30}$

C. $\frac{\square}{15} \div 6 = \frac{2}{15}$



PS

2a. Josh and Kelly are calculating

$$\frac{4}{10} \div 2.$$



Josh

The answer is $\frac{2}{10}$.



Kelly

The answer is $\frac{2}{5}$.

Who is correct?
Explain how you know.



R

2b. Vlad and Chan are calculating

$$\frac{6}{12} \div 3.$$



Chan

The answer is $\frac{3}{6}$.



Vlad

The answer is $\frac{2}{12}$.

Who is correct?
Explain how you know.



R

3a. Felix has $\frac{6}{8}$ of his pizza left.

He wants to share them between himself and two friends.

Write the calculation.

What fraction of pizza does each child get?



PS

3b. Natalie has $\frac{8}{10}$ of a box of crackers left.

She wants to share them between herself and three friends.

Write the calculation.

What fraction of crackers does each child get?



PS

Divide Fractions by Integers 1

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4a. The missing digit in all the calculations is the same. Find the missing number.

A. $\frac{8}{\square} \div 4 = \frac{2}{8}$

B. $\frac{24}{30} \div \square = \frac{3}{30}$

C. $\frac{\square}{16} \div 2 = \frac{4}{16}$



PS

4b. The missing digit in all the calculations is the same. Find the missing number.

A. $\frac{21}{\square} \div 7 = \frac{3}{28}$

B. $\frac{28}{40} \div \square = \frac{1}{40}$

C. $\frac{\square}{40} \div 7 = \frac{4}{40}$



PS

5a. Cian and Lucy are calculating

$$\frac{16}{8} \div 4.$$



Cian

The answer is $\frac{4}{2}$.



Lucy

The answer is $\frac{4}{8}$.

Who is correct?
Explain how you know.



R

5b. Ben and Steph are calculating

$$\frac{18}{12} \div 6.$$



Ben

The answer is $\frac{18}{2}$.



Steph

The answer is $\frac{3}{12}$.

Who is correct?
Explain how you know.



R

6a. Alice has $\frac{15}{18}$ of her packet of sweets left.

She wants to share them between herself and four friends.

Write the calculation.

What fraction of sweets does each child get?



PS

6b. Lex has $\frac{28}{30}$ of a packet of biscuits left.

He wants to share them between himself and six friends.

Write the calculation.

What fraction of biscuits does each child get?



PS

Divide Fractions by Integers 1

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7a. The missing digit in all the calculations is the same. Find the missing number.

A. $1 \frac{6}{\square} \div 3 = \frac{6}{12}$

B. $2 \frac{4}{10} \div \square = \frac{2}{10}$

C. $\frac{\square}{5} \div 4 = \frac{3}{5}$



PS

7b. The missing digit in all the calculations is the same. Find the missing number.

A. $\frac{12}{\square} \div 6 = \frac{2}{3}$

B. $7 \frac{1}{2} \div \square = \frac{5}{2}$

C. $1 \frac{\square}{4} \div 7 = \frac{1}{4}$



PS

8a. Lana and Hafsa are calculating

$$8 \frac{8}{11} \div 8.$$



Lana

The answer is $\frac{12}{11}$.



Hafsa

The answer is $\frac{11}{11}$.

Who is correct?
Explain how you know.



R

8b. Pete and Chloe are calculating

$$2 \frac{6}{9} \div 3.$$



Pete

The answer is $\frac{8}{9}$.



Chloe

The answer is $\frac{24}{3}$.

Who is correct?
Explain how you know.



R

9a. Johnny has $5 \frac{10}{12}$ of his packet of sweets left.

He wants to share them between himself and six friends.

Write the calculation.

What fraction of sweets does each child get?



PS

9b. Clark has $2 \frac{8}{12}$ layers of a box of chocolates left.

He wants to share them between himself and seven friends.

Write the calculation.

What fraction of chocolates does each child get?



PS

Reasoning and Problem Solving Divide Fractions by Integers 1

Developing

1a. 6

2a. Josh is correct. Kelly has divided both the numerator and denominator by 2.

3a. The calculation is $\frac{6}{8} \div 3$. The answer is $\frac{2}{8}$ or $\frac{1}{4}$.

Expected

4a. 8

5a. Lucy is correct. Cian has divided both the numerator and denominator by 4.

6a. The calculation is $\frac{15}{18} \div 5$. The answer is $\frac{3}{18}$ or $\frac{1}{6}$.

Greater Depth

7a. 12

8a. Lana is correct. Hafsa has divided 88 by 8 rather than 96 divided by 8.

9a. The calculation is $5\frac{10}{12} \div 7$. The answer is $\frac{10}{12}$ or $\frac{5}{6}$.

Reasoning and Problem Solving Divide Fractions by Integers 1

Developing

1b. 12

2b. Vlad is correct. Chan has divided the denominator and the numerator by 2.

3b. The calculation is $\frac{8}{10} \div 4$. The answer is $\frac{2}{10}$ or $\frac{1}{5}$.

Expected

4b. 28

5b. Steph is correct. Ben has divided the denominator instead of the numerator.

6b. The calculation is $\frac{28}{30} \div 7$. The answer is $\frac{4}{30}$ or $\frac{2}{15}$.

Greater Depth

7b. 3

8b. Pete is correct. Chloe has divided the denominator instead of the numerator.

9b. The calculation is $2\frac{8}{12} \div 8$. The answer is $\frac{4}{12}$ or $\frac{1}{3}$.