Reasoning and Problem Solving
Step 17: Multiply Non-Unit Fractions by an Integer

National Curriculum Objectives:

Mathematics Year 5: (5F5) Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
Mathematics Year 5: (5F3) Compare and order fractions whose denominators are all multiples of the same number
Mathematics Year 5: (5F2a) Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]
Mathematics Year 5: (5F2b) Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Identify the odd one out and explain why when multiplying non-unit fractions by integers. Answers are within 1.
Expected Identify the odd one out and explain why when multiplying non-unit fractions by integers. Answers need to be simplified using knowledge of equivalent fractions.
Greater Depth Identify the odd one out and explain why when multiplying unit fractions by integers. Answers need to be converted to a mixed number and simplified using knowledge of equivalent fractions.

Questions 2, 5 and 8 (Reasoning)
Developing Prove who is correct when multiplying non-unit fractions by integers. Answers are within 1.
Expected Prove who is correct when multiplying non-unit fractions by integers. Answers need to be converted to a mixed number or simplified using knowledge of equivalent fractions.
Greater Depth Prove who is correct when multiplying non-unit fractions by integers. Answers need to be converted to a mixed number and simplified using knowledge of equivalent fractions.

Questions 3, 6 and 9 (Problem Solving)
Developing Use the digit cards to complete the calculations. Answers are within 1.
Expected Use the digit cards to complete the calculations. Answers need to be converted to a mixed number or simplified using knowledge of equivalent fractions.
Greater Depth Use the digit cards to complete the calculations. Answers need to be converted to a mixed number and simplified using knowledge of equivalent fractions.

More Year 5 Fractions resources.

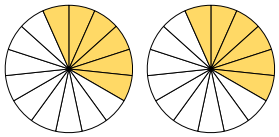
Did you like this resource? Don't forget to review it on our website.

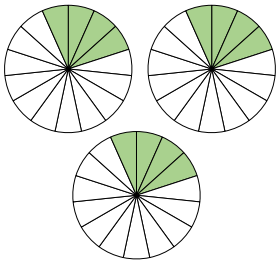
Multiply Non-Unit Fractions by an Integer

1a. Which is the odd one out?

A. $\frac{2}{15} \times 7$

B. $\frac{2}{15} \times 6$

C. 

D. 

Explain your answer.

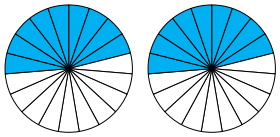
D

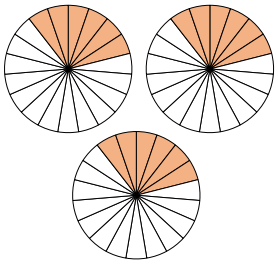
R

1b. Which is the odd one out?

A. $\frac{3}{19} \times 6$

B. $\frac{5}{19} \times 3$

C. 

D. 

Explain your answer.

D

R

2a. Class 5B have been solving the calculation below.

$$3 \times \frac{5}{17}$$

Rosie says,

I think the answer is $\frac{15}{17}$.

Todd says,

I think the answer is $\frac{8}{20}$.

Who is correct? Prove it.

D

R

2b. Class 5S have been solving the calculation below.

$$4 \times \frac{3}{13}$$

Steve says,

I think the answer is $\frac{12}{13}$.

Meg says,

I think the answer is $\frac{7}{13}$.

Who is correct? Prove it.

D

R

3a. Use the digit cards to make the calculation correct.

$$\frac{4}{13} \times \square = \frac{\square}{\square}$$

2	4	12	11
3	1	13	8

D

PS

3b. Use the digit cards to make the calculation correct.

$$\frac{3}{19} \times \square = \frac{\square}{\square}$$

19	5	6	12
4	1	18	3

D

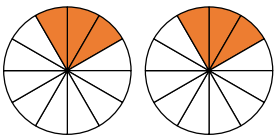
PS

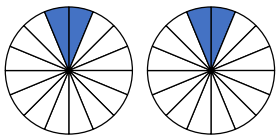
Multiply Non-Unit Fractions by an Integer

4a. Which is the odd one out?

A. $\frac{2}{20} \times 5$

B. $\frac{3}{18} \times 3$

C. 

D. 

Explain your answer.

E

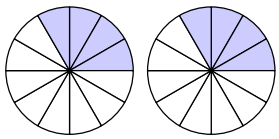
R

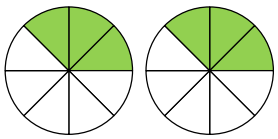
Multiply Non-Unit Fractions by an Integer

4b. Which is the odd one out?

A. $\frac{2}{16} \times 6$

B. $\frac{3}{20} \times 5$

C. 

D. 

Explain your answer.

E

R

5a. Class 5A have been solving the calculation below.

$$4 \times \frac{6}{19}$$

Jorelle says,

I think the answer is $1\frac{5}{19}$.

Oscar says,

I think the answer is $\frac{24}{76}$.

Who is correct? Prove it.

E

R

5b. Class 5F have been solving the calculation below.

$$2 \times \frac{3}{18}$$

Stan says,

I think the answer is $\frac{6}{18}$.

Holly says,

I think the answer is $\frac{1}{3}$.

Who is correct? Prove it.

E

R

6a. Use the digit cards to make the calculation correct.

$\frac{3}{11} \times \square = \square\frac{\square}{\square}$

1	5	12	6
4	18	11	7

Each digit card can only be used once in a calculation.

E

PS

6b. Use the digit cards to make the calculation correct.

$\frac{4}{13} \times \square = \square\frac{\square}{\square}$

4	5	20	3
13	1	16	7

Each digit card can only be used once in a calculation.

E

PS

Multiply Non-Unit Fractions by an Integer

7a. Which is the odd one out?

A. $\frac{6}{18} \times 4$

B. $\frac{3}{12} \times 5$

C. $\frac{5}{16} \times 4$

D. $\frac{5}{20} \times 5$

Explain your answer.

GD

R

Multiply Non-Unit Fractions by an Integer

7b. Which is the odd one out?

A. $\frac{4}{12} \times 4$

B. $\frac{8}{14} \times 2$

C. $\frac{4}{27} \times 9$

D. $\frac{4}{15} \times 5$

Explain your answer.

GD

R

8a. Class 5D have been solving the calculation below.

$$7 \times \frac{5}{14}$$

Lindsay says,

I think the answer is $2\frac{1}{2}$.

Kyle says,

I think the answer is $2\frac{5}{7}$.

Who is correct? Prove it.

GD

R

8b. Class 5H have been solving the calculation below.

$$5 \times \frac{9}{20}$$

Lee says,

I think the answer is $2\frac{1}{4}$.

Amy says,

I think the answer is $2\frac{1}{3}$.

Who is correct? Prove it.

GD

R

9a. Use the digit cards to make the calculation correct.

$\frac{7}{12} \times \square = \square\frac{\square}{\square}$

4	2	14	1
3	1	6	12

Each digit card can only be used once in a calculation.

GD

PS

9b. Use the digit cards to make the calculation correct.

$\frac{5}{14} \times \square = \square\frac{\square}{\square}$

14	3	2	5
4	1	6	7

Each digit card can only be used once in a calculation.

GD

PS

Reasoning and Problem Solving Multiply Non-Unit Fractions by an Integer

Developing

1a. A is the odd one out as it equals $\frac{14}{15}$. All the rest equal $\frac{12}{15}$ or $\frac{4}{5}$.

2a. Rosie is correct. Todd has added the integer to the numerator and denominator.

3a. $\frac{4}{13} \times 2 = \frac{8}{13}$ or $\frac{4}{13} \times 3 = \frac{12}{13}$

Expected

4a. D is the odd one out as the others are equivalent to $\frac{1}{2}$.

5a. Jorelle is correct because Oscar has multiplied the denominator as well as the numerator.

6a. $\frac{3}{11} \times 5 = 1\frac{4}{11}$ or $\frac{3}{11} \times 6 = 1\frac{7}{11}$

Greater Depth

7a. A is the odd one out as it's equivalent to $1\frac{1}{3}$. The others are equivalent to $1\frac{1}{4}$.

8a. Lindsay is correct. $\frac{5}{14} \times 7 = 2\frac{1}{2}$

9a. $\frac{7}{12} \times 2 = 1\frac{1}{6}$ or $\frac{7}{12} \times 4 = 2\frac{1}{3}$

Reasoning and Problem Solving Multiply Non-Unit Fractions by an Integer

Developing

1b. B is the odd one out as it equals $\frac{15}{19}$. All the rest equal $\frac{18}{19}$.

2b. Steve is correct. Meg has added the integer to the numerator.

3b. $\frac{3}{19} \times 4 = \frac{12}{19}$ or $\frac{3}{19} \times 6 = \frac{18}{19}$

Expected

4b. C is the odd one out as the others are equivalent to $\frac{3}{4}$.

5b. They are both correct as $\frac{1}{3}$ is the simplest form of $\frac{6}{18}$.

6b. $\frac{4}{13} \times 4 = 1\frac{3}{13}$ or $\frac{4}{13} \times 5 = 1\frac{7}{13}$

Greater Depth

7b. B is the odd one out as it's equivalent to $1\frac{1}{7}$. The others are equivalent to $1\frac{1}{3}$.

8b. Lee is correct. $\frac{9}{20} \times 5 = 2\frac{1}{4}$

9b. $\frac{5}{14} \times 4 = 1\frac{3}{7}$ or $\frac{5}{14} \times 6 = 2\frac{1}{7}$