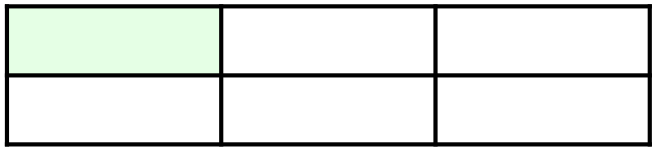
Multiply Fractions by Fractions

1a. Look at the calculation below.

$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{5}$$



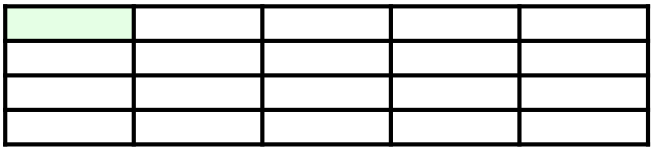
Is it correct? Explain how you know.

D R

Multiply Fractions by Fractions

1b. Look at the calculation below.

$$\frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$$



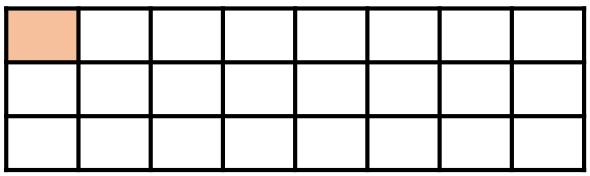
Is it correct? Explain how you know.

D R

2a. Marcus is trying to find pairs of proper fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = \frac{1}{24}$$

He finds 3 pairs. What could his pairs be?

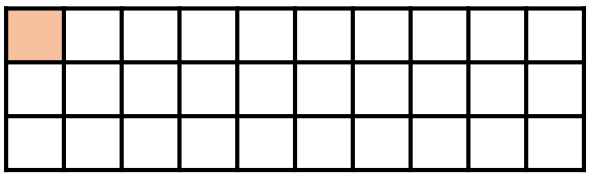


D PS

2b. Harvey is trying to find pairs of proper fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = \frac{1}{30}$$

He finds 3 pairs. What could his pairs be?



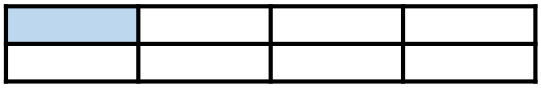
D PS

3a. Sian is thinking about multiplying fractions.

Sian

If the answer to a fraction multiplication is $\frac{1}{8}$, one of the fractions which was multiplied could have been $\frac{1}{2}$. The answer has not been simplified.

Is she correct? Explain how you know.



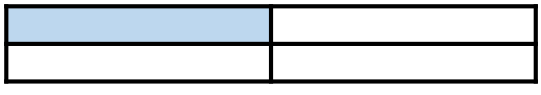
D R

3b. Tanya is thinking about multiplying fractions.

Tanya

If the answer to a fraction multiplication is $\frac{1}{4}$, one of the fractions which was multiplied could have been $\frac{1}{3}$. The answer has not been simplified.

Is she correct? Explain how you know.

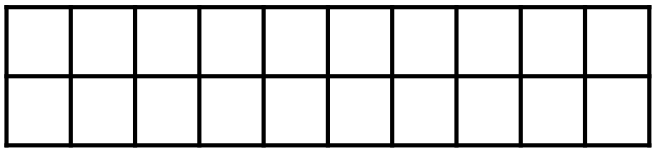


D R

Multiply Fractions by Fractions

4a. Look at the calculation below.

$$\frac{1}{4} \times \frac{2}{5} = \frac{3}{20}$$



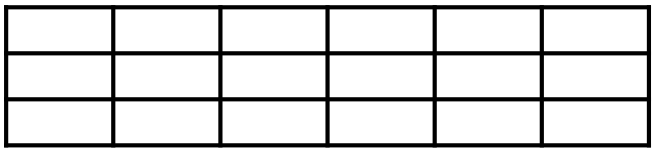
Is it correct? Explain how you know.

E R

Multiply Fractions by Fractions

4b. Look at the calculation below.

$$\frac{2}{3} \times \frac{5}{6} = \frac{10}{18}$$



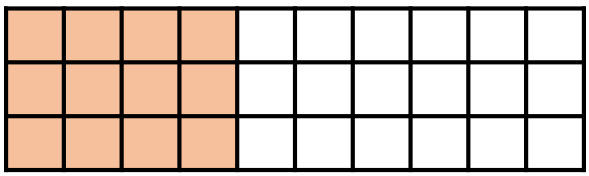
Is it correct? Explain how you know.

E R

5a. Stacy is trying to find pairs of proper fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = \frac{12}{30}$$

She finds 3 pairs. What could her pairs be?

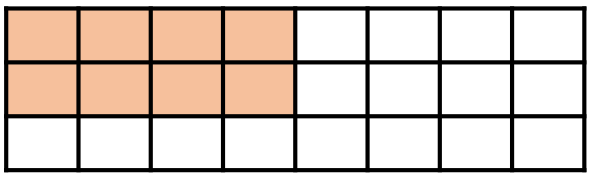


E PS

5b. Hattie is trying to find pairs of proper fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = \frac{8}{24}$$

She finds 3 pairs. What could her pairs be?



E PS

6a. Rose is thinking about multiplying fractions.

Rose

If the answer to a fraction multiplication is $\frac{4}{16}$, one of the fractions which was multiplied could have been $\frac{2}{7}$. The answer has not been simplified.

Is she correct? Explain how you know.

E R

6b. Cory is thinking about multiplying fractions.

Cory

If the answer to a fraction multiplication is $\frac{6}{15}$, one of the fractions which was multiplied could have been $\frac{2}{3}$. The answer has not been simplified.

Is he correct? Explain how you know.

E R

Multiply Fractions by Fractions

7a. Look at the calculation below.

$$\frac{10}{8} \times \frac{9}{7} = 1\frac{34}{56}$$

Is it correct? Explain how you know.

GD R

Multiply Fractions by Fractions

7b. Look at the calculation below.

$$\frac{11}{12} \times \frac{8}{5} = 1\frac{41}{55}$$

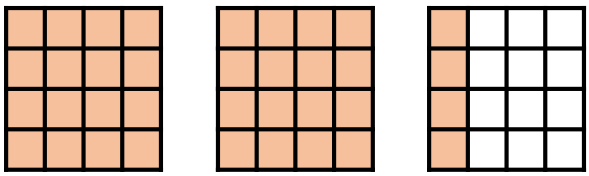
Is it correct? Explain how you know.

GD R

8a. Titus is trying to find pairs of fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = 2\frac{4}{16}$$

He finds 3 pairs so far. What could his pairs be?

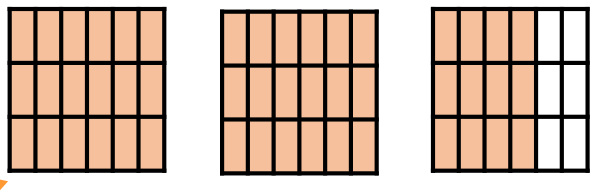


GD PS

8b. Craig is trying to find pairs of fractions which multiply together to make the answer below.

$$\frac{?}{?} \times \frac{?}{?} = 2\frac{12}{18}$$

He finds 3 pairs so far. What could his pairs be?



GD PS

9a. Hugh is thinking about multiplying fractions.

Hugh

If the simplified answer to a fraction multiplication is $1\frac{1}{14}$, one of the fractions which was multiplied could have been $\frac{3}{7}$.

Is he correct? Explain how you know.

GD R

9b. James is thinking about multiplying fractions.

James

If the simplified answer to a fraction multiplication is $2\frac{1}{12}$, one of the fractions which was multiplied could have been $\frac{9}{2}$.

Is he correct? Explain how you know.

GD R

Reasoning and Problem Solving Multiply Fractions by Fractions

Developing

1a. It is incorrect because 1 x 1 = 1 and 3 x 2 = 6. The answer is $\frac{1}{6}$.

2a. $\frac{1}{2} \times \frac{1}{12}$; $\frac{1}{3} \times \frac{1}{8}$; $\frac{1}{4} \times \frac{1}{6}$

3a. Sian is correct: 1 is a multiple of 1 and 8 is a multiple of 2.

Expected

4a. It is incorrect because 1 x 2 = 2 and 4 x 5 = 20. The answer is $\frac{2}{20}$.

5a. Various answers, for example:

$\frac{1}{2} \times \frac{12}{15}$; $\frac{2}{3} \times \frac{6}{10}$; $\frac{3}{5} \times \frac{4}{6}$

6a. Rose is incorrect: 4 is a multiple of 2 but 16 is not a multiple of 7.

Greater Depth

7a. It is correct because 10 x 9 = 90 and 8 x 7 = 56 and $\frac{90}{56} = 1\frac{34}{56}$.

8a. Various answers, for example:

$\frac{1}{2} \times \frac{36}{8}$; $\frac{3}{2} \times \frac{12}{8}$; $\frac{3}{4} \times \frac{12}{4}$

9a. Hugh is correct: 15 is a multiple of 3 and 14 is a multiple of 7; $\frac{15}{14} = 1\frac{1}{14}$

Reasoning and Problem Solving Multiply Fractions by Fractions

Developing

1b. It is correct because 1 x 1 = 1 and 4 x 5 = 20.

2b. $\frac{1}{2} \times \frac{1}{15}$; $\frac{1}{3} \times \frac{1}{10}$; $\frac{1}{5} \times \frac{1}{6}$

3b. Tanya is incorrect: 1 is a multiple of 1, but 4 is not a multiple of 3.

Expected

4b. It is correct because 2 x 5 = 10 and 3 x 6 = 18.

5b. Various answers, for example:

$\frac{1}{2} \times \frac{8}{12}$; $\frac{2}{4} \times \frac{4}{6}$; $\frac{2}{3} \times \frac{4}{8}$

6b. Cory is correct: 6 is a multiple of 2 and 15 is a multiple of 3.

Greater Depth

7b. It is incorrect because 11 x 8 = 88 and 12 x 5 = 60. The answer is $1\frac{28}{60}$.

8b. Various answers, for example:

$\frac{1}{2} \times \frac{48}{9}$; $\frac{2}{3} \times \frac{24}{6}$; $\frac{4}{9} \times \frac{12}{2}$

9b. James is incorrect because 12 is a multiple of 2 but 25 is not a multiple of 9; $\frac{25}{12} = 2\frac{1}{12}$