

Lesson 3.1, Question 18

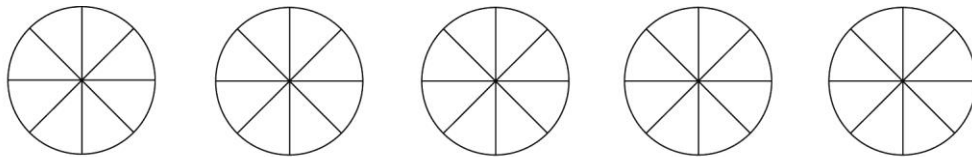
Step 1 Choose one of the situations below. Check the one you choose.

Alicia planned for $\frac{3}{8}$ slices of pizza for each person at her homework group.

Carl can stock a grocery shelf in $\frac{3}{8}$ of an hour.

Use your choice to write a problem you would solve by finding $5 \times \frac{3}{8}$.

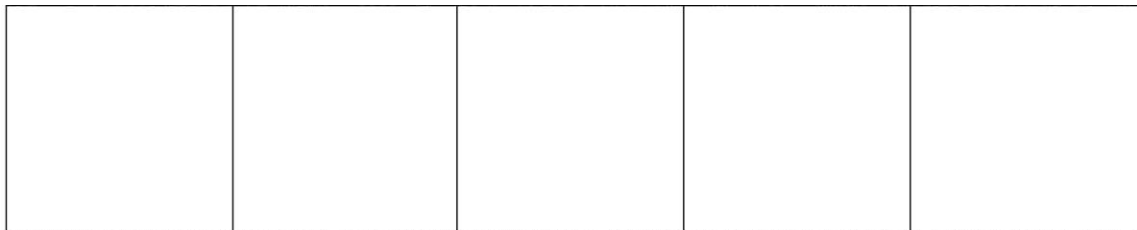
Step 2 Shade the diagram to show $5 \times \frac{3}{8}$.



Step 3 What is $5 \times \frac{3}{8}$? _____

Step 4 Divide the rectangle horizontally into eighths.
Shade $\frac{3}{8}$ of the rectangle.

The shaded area shows $\frac{3}{8} \times 5$.



Step 5 Write a situation that can be represented by $\frac{3}{8}$ of 5, or $\frac{3}{8} \times 5$.

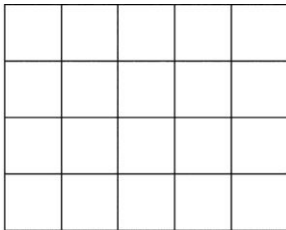
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Step-by-Step 2

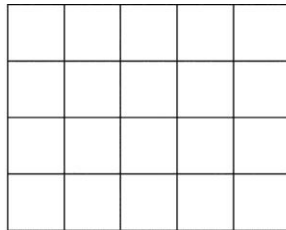
Lesson 3.2, Question 12

Step 1 Use the rectangles to show each product.

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

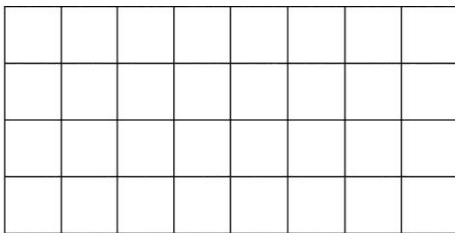


$$\frac{2}{4} \times \frac{3}{5} =$$

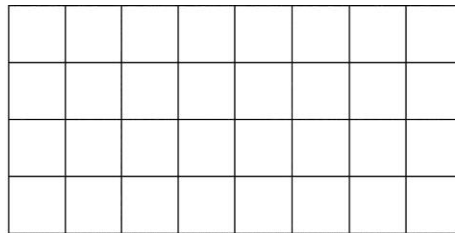


Step 2 Repeat *Step 1* for these products.

$$\frac{1}{4} \times \frac{3}{8} =$$



$$\frac{3}{4} \times \frac{1}{8} =$$



Step 3 Use grid paper. Draw a rectangle for each product: $\frac{3}{5} \times \frac{4}{6}$ and $\frac{3}{6} \times \frac{4}{5}$

Look at all the rectangles you shaded.

What patterns do you see in the multiplication statements?

What patterns do you see when you compare the rectangles in each pair?

Step 4 Write two multiplication statements similar to those in *Steps 1* and 2. Predict each result. Use grid paper to check.

Lesson 3.3, Question 13

Step 1 Find what you multiply $\frac{2}{3}$ by to get each product.

$$\frac{2}{3} \times \frac{\square}{\square} = 1; \quad \frac{2}{3} \times \frac{\square}{\square} = 2; \quad \frac{2}{3} \times \frac{\square}{\square} = 3; \quad \frac{2}{3} \times \frac{\square}{\square} = 4; \quad \frac{2}{3} \times \frac{\square}{\square} = 5$$

Step 2 Start with $\frac{3}{4} \times \frac{4}{3} = \frac{12}{12} = 1$.

Change a numerator to get:

$$\frac{\square}{4} \times \frac{4}{3} = 2; \quad \frac{\square}{4} \times \frac{4}{3} = 3; \quad \frac{\square}{4} \times \frac{4}{3} = 4; \quad \frac{\square}{4} \times \frac{4}{3} = 5$$

Step 3 Start with $\frac{1}{60} \times \frac{60}{1} = \frac{60}{60} = 1$.

Change a denominator to get:

$$\frac{1}{\square} \times \frac{60}{1} = 2; \quad \frac{1}{\square} \times \frac{60}{1} = 3; \quad \frac{1}{\square} \times \frac{60}{1} = 4; \quad \frac{1}{\square} \times \frac{60}{1} = 5$$

Step 4 Use the patterns in *Steps 2 or 3*.
Write a pair of fractions that has the product 10.

$$\frac{\square}{\square} \times \frac{\square}{\square} = 10$$

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Step-by-Step 4**Lesson 3.4, Question 17**

Step 1 Elsa baked $2\frac{1}{2}$ dozen cookies. Layton baked $2\frac{1}{6}$ times as many.

Estimate $2\frac{1}{6} \times 2\frac{1}{2}$, the number of dozen cookies Layton baked.

$2\frac{1}{6}$ is close to _____ and $2\frac{1}{2}$ close to _____.

The product will be close to _____ \times _____, or _____.

Step 2 Elsa baked $2\frac{1}{2}$ dozen cookies.. Meghan and Josh baked $5\frac{1}{3}$ times as many.

Estimate $5\frac{1}{3} \times 2\frac{1}{2}$, the number of dozen cookies Meghan and Josh baked.

Step 3 Calculate the number of dozen cookies Layton baked.

$$2\frac{1}{6} \times 2\frac{1}{2} =$$

Step 4 Calculate the number of dozen cookies Meghan and Josh baked.

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

Step 5 Add the number of dozen cookies made by the four students to find the total number of dozen cookies made for the bake sale.

Step 6 One dozen cookies is 12 cookies.
Use this information to find the total number of cookies baked by all 4 students.

$$\text{_____} \times 12 = \text{_____}$$

Step-by-Step 5

Lesson 3.5, Question 12

Step 1 Start with 2 as the dividend. Write 4 and 6 in the other boxes, in as many different ways as you can. Find each quotient.

$$\boxed{2} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

$$\boxed{2} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

Step 2 Repeat *Step 1* with 4 as the dividend. Write 2 and 6 in the other boxes in as many different ways as you can.

$$\boxed{4} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

$$\boxed{4} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

Step 3 Repeat *Step 1* with 6 as the dividend. Write 2 and 4 in the other boxes in as many different ways as you can.

$$\boxed{6} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

$$\boxed{6} \div \frac{\boxed{}}{\boxed{}} = \underline{\hspace{2cm}}$$

Step 4 Which quotient above is the greatest? _____

Step 5 Which quotient above is the least? _____

Step 6 How could you have completed *Steps 4* and *5* without first completing *Steps 1* to *3*?

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Step-by-Step 6

Lesson 3.6, Question 17

Step 1 The numerator of the first fraction is 2. Write 3, 4, and 5 in the other boxes. Do this as many different ways as you can. Find each quotient.

$$\frac{2}{\square} \div \frac{\square}{\square} = \quad ; \quad \frac{2}{\square} \div \frac{\square}{\square} = \quad ; \quad \frac{2}{\square} \div \frac{\square}{\square} =$$

$$\frac{2}{\square} \div \frac{\square}{\square} = \quad ; \quad \frac{2}{\square} \div \frac{\square}{\square} = \quad ; \quad \frac{2}{\square} \div \frac{\square}{\square} =$$

Step 2 Draw 6 sets of boxes like those in *Step 1*. Write 3 as the numerator of the first fraction. Write 2, 4, and 5 in the other boxes as many different ways as you can. Find each quotient.

Step 3 Repeat *Step 2* with 4 in the numerator of the first fraction. Arrange 2, 3, and 5 in the other boxes. Find the quotients.

Step 4 Repeat *Step 2* with 5 in the numerator of the first fraction. Arrange 2, 3, and 4 in the other boxes. Find the quotients.

Step 5 Which quotient is greatest? _____
 What patterns do you see? _____

Step 6 Which quotient is least? _____
 What patterns do you see? _____

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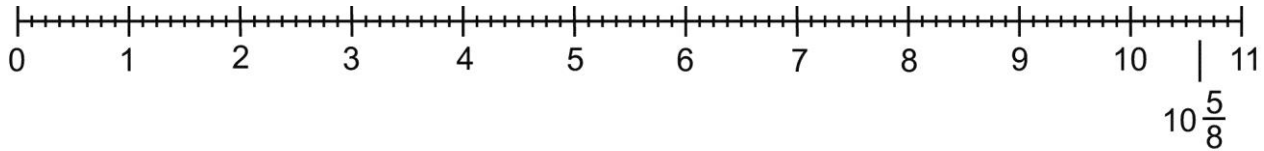
Step-by-Step 7

Lesson 3.7, Question 14

Amelia ordered $10\frac{5}{8}$ loads of topsoil to fill planters. Each planter holds $1\frac{1}{2}$ loads of topsoil.

Step 1 Show how to estimate the number of planters Amelia can fill.

Step 2 Complete the number line to illustrate the number of planters Amelia can fill.



Step 3 Calculate the number of planters Amelia can fill.

Step 4 Explain what the fraction part of the answer represents.

Step 5 How many planters can Amelia fill?

Master 3.23

Step-by-Step 8

Lesson 3.8, Question 11

- Step 1** Shavon pours 3 servings of $\frac{3}{8}$ cup each into 3 glasses.
Estimate $3 \times \frac{3}{8}$.
- Step 2** Shavon pours $\frac{5}{6}$ of a cup into a fourth glass. Continue your estimate by thinking about adding $\frac{5}{6}$ to your result from *Step 1*.
- Step 3** Estimate the amount remaining.
Subtract your estimate in *Step 2* from $2\frac{1}{2}$.
- Step 4** Calculate the total amount of juice in the 3 glasses that contain $\frac{3}{8}$ cup of liquid.
Multiply $3 \times \frac{3}{8}$.
- Step 5** Calculate the total amount of juice in the 4 glasses by adding $\frac{5}{6}$ to the result of *Step 4*.
- Step 6** Calculate the amount remaining in the jug by subtracting your answer in *Step 5* from $2\frac{1}{2}$.

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Step-by-Step 9

Lesson 3.9, Question 11

$$4 \times \left(\frac{3}{4} - \frac{1}{2}\right) + \frac{13}{6} \times \frac{1}{2}$$

Step 1

Correct Order

Operation in brackets first

$$= 4 \times (\text{_____}) + \frac{13}{6} \times \frac{1}{2}$$

Multiply from left to right.

$$= \text{_____} + \text{_____}$$

Then add:

$$= \text{_____}$$

Who had this correct answer? _____

Step 2

Incorrect Order

$$4 \times \left(\frac{3}{4} - \frac{1}{2}\right) + \frac{13}{6} \times \frac{1}{2}$$

Operation in brackets

$$= 4 \times (\text{_____}) + \frac{13}{6} \times \frac{1}{2}$$

Add $\frac{13}{6}$ next.

$$= 4 \times \text{_____} \times \frac{1}{2}$$

Multiply by $\frac{1}{2}$.

$$= 4 \times \text{_____}$$

Multiply by 4.

$$= \text{_____}$$

Who had this answer? _____

What was the error that student made? _____

Step 3

Try a different order.

$$4 \times \left(\frac{3}{4} - \frac{1}{2}\right) + \frac{13}{6} \times \frac{1}{2}$$

=

=

=

Who had this answer? _____

What was the error in this case? _____