

Lesson 2.1

October 24, 2013

# WarmUp

**Find the product.**

7.  $8 \cdot 12 =$  \_\_\_\_\_

8.  $15 \times 12 =$  \_\_\_\_\_

9.  $(13)(20) =$  \_\_\_\_\_

11.  $13 \times 6 =$  \_\_\_\_\_

12.  $(11)(8) =$  \_\_\_\_\_

13.  $19 \cdot 21 =$  \_\_\_\_\_

15.  $0 \cdot 114 =$  \_\_\_\_\_

16.  $26 \times 1 =$  \_\_\_\_\_

17.  $4 \cdot 10 \cdot 8 =$  \_\_\_\_\_

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# Essential Question

What does it mean to multiply fractions?

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# LessonTarget

To be able to:

- use a visual model for multiplying fractions.

Score	Description
4	I can teach other students how to use a visual model for multiplying fractions.
3	I can use a visual model for multiplying fractions.
2	I recognize a visual model for multiplying fractions.
1	I do not know how to use a visual model for multiplying fractions.

# Activity1

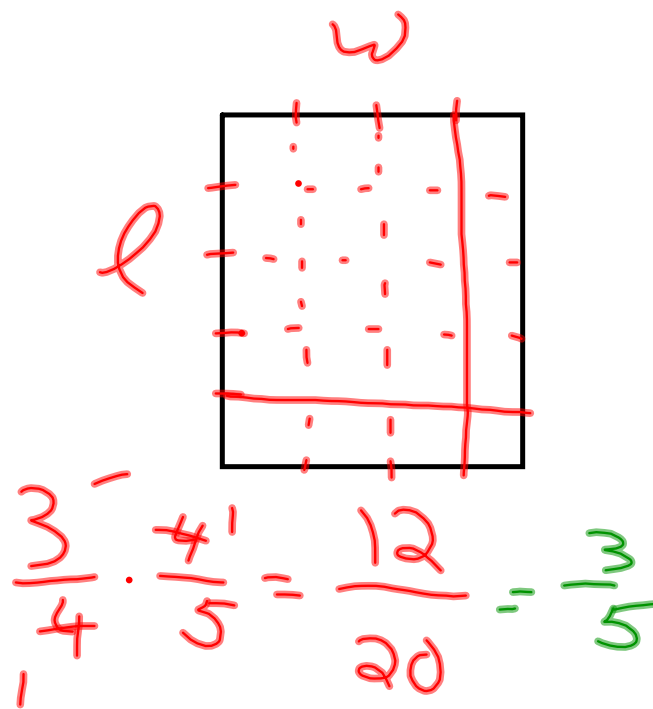
With a partner, complete Acvity 1  
on page 31 in your Big Ideas Record  
and Pracce Journal.

## Activity2

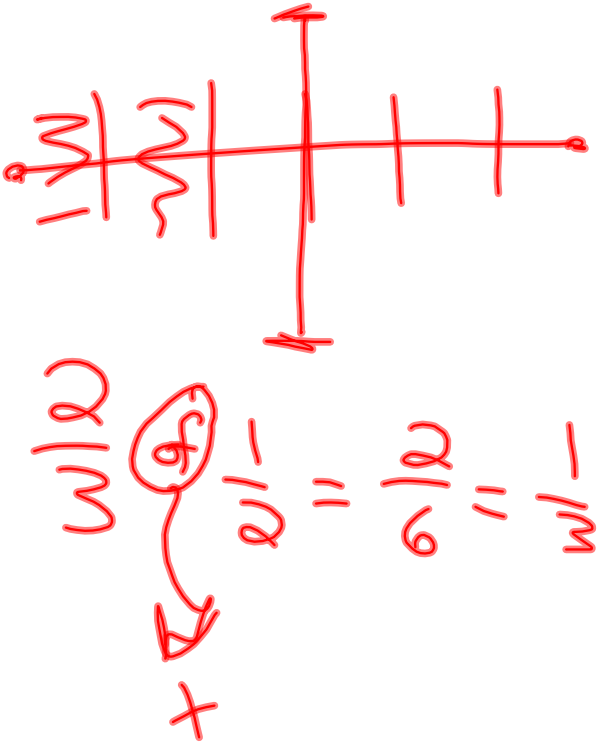
With a partner, complete Acvity 2  
on page 32 in your Big Ideas Record  
and Pracce Journal.

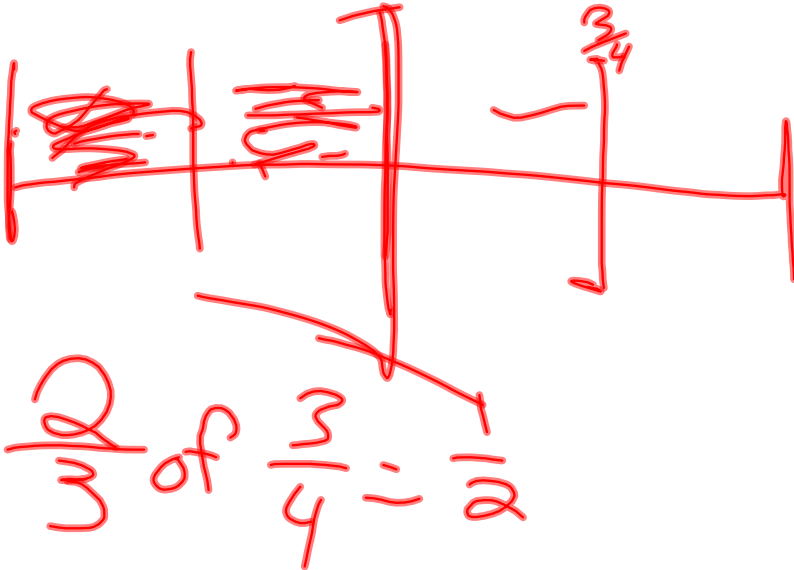
# Inductive Reasoning Table

With a partner, complete the Inductive Reasoning Table on page 32 in your Big Ideas Record and Practice Journal.









$$\frac{2}{3} \times \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$$

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

$$\frac{3}{5} \times \frac{1}{3} = \frac{3}{15}$$

# WarmUp

Find the sum or difference.

8.  $21 + 7 = \underline{\quad}$

9.  $94 + 0 = \underline{\quad}$

10.  $104 + 142 = \underline{\quad}$

11.  $1147 + 234 = \underline{\quad}$

12.  $19 - 18 = \underline{\quad}$

13.  $39 - 29 = \underline{\quad}$

14.  $72 - 49 = \underline{\quad}$

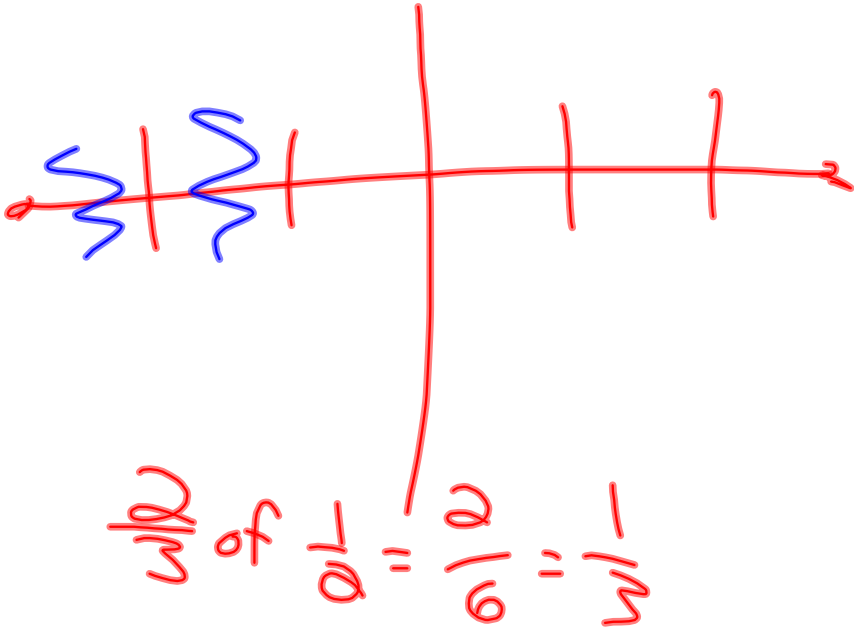
15.  $1035 - 246 = \underline{\quad}$

16.  $941 - 0 = \underline{\quad}$

17.  $12 + 5 + 8 = \underline{\quad}$

18.  $31 + 1 + 1 = \underline{\quad}$

19.  $123 + 41 + 18 = \underline{\quad}$







$$\frac{2}{5} \text{ of } \frac{3}{4} = \frac{1}{2} = \frac{6}{12}$$





## 1 Multiplying Fractions

Find  $\frac{1}{5} \times \frac{1}{3}$ .

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

Multiply the numerators.

Multiply the denominators.

$$= \frac{1}{15}$$

Simplify.

regular reduce

$$\frac{2}{6} = \frac{1}{3}$$

$$\frac{2}{3} \cdot \frac{1}{2} = \frac{1}{3}$$

$$\frac{1}{15} \cdot \frac{44}{45} = \frac{44}{135}$$

Cross reducing

$$\frac{1}{15} \cdot \frac{44}{45} = \frac{44}{135}$$

$$\frac{9}{10} \cdot \frac{7}{8} = \frac{63}{80}$$

$$\begin{array}{r} \frac{1}{5} \\ \frac{1}{5} \\ \hline \frac{2}{5} \end{array} \cdot \begin{array}{r} \frac{1}{2} \\ \frac{1}{5} \\ \hline \frac{3}{10} \end{array} = \frac{2}{5} \cdot \frac{3}{10} = \frac{6}{50} = \frac{3}{25}$$

$\frac{2}{5} \cdot \frac{3}{10} = \frac{6}{50} = \frac{3}{25}$

$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

$\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$

$\frac{1}{2} \times \frac{3}{3} = \frac{3}{6} = \frac{1}{2}$

2

Multiplying Fractions with Common Factors

Find  $\frac{8}{9} \times \frac{3}{4}$ .

**Estimate**  $1 \times \frac{3}{4} = \frac{3}{4}$

$$\frac{8}{9} \times \frac{3}{4} = \frac{8 \times 3}{9 \times 4}$$

Multiply the numerators.

Multiply the denominators.

$$= \frac{\overset{2}{\cancel{8}} \times \overset{1}{\cancel{3}}}{\underset{3}{\cancel{9}} \times \underset{1}{\cancel{4}}}$$

Divide out common factors.

$$= \frac{2}{3}$$

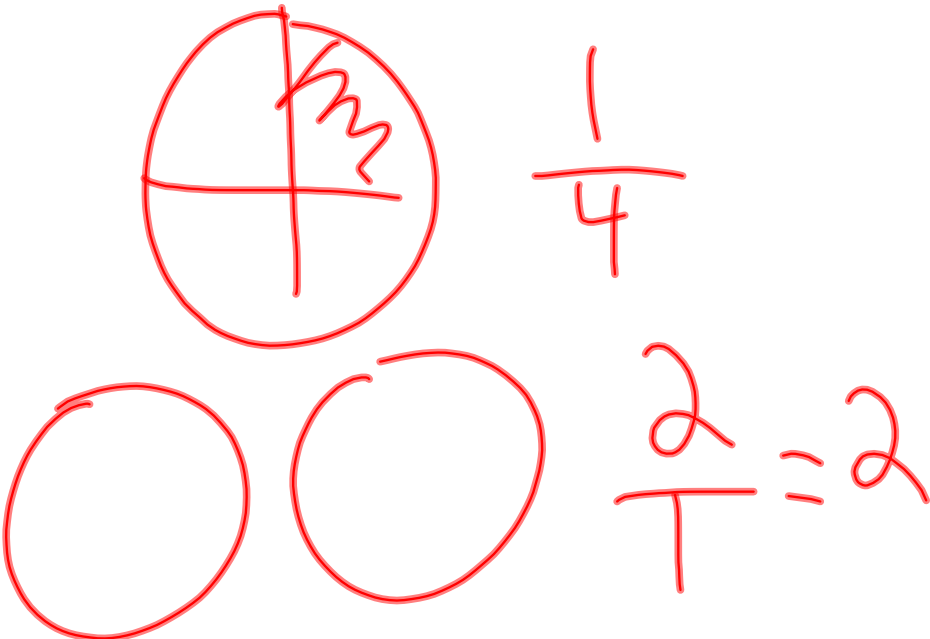
Simplify.

••• The product is  $\frac{2}{3}$ .

**Reasonable?**  $\frac{2}{3} \approx \frac{3}{4}$  ✓



$$\begin{array}{r} 18 \\ \underline{+3} \\ 1 \end{array} \times \begin{array}{r} 12 \\ \underline{+4} \\ 48 \end{array} = \begin{array}{r} 39 \\ \underline{+4} \\ 43 \end{array}$$
  
$$\begin{array}{r} 12 \\ \underline{+3} \\ 15 \end{array} \times \begin{array}{r} 39 \\ \underline{+4} \\ 43 \end{array} = \begin{array}{r} 39 \\ \underline{+4} \\ 43 \end{array}$$



$$\frac{1}{3} \cdot \frac{1}{5} = \frac{1}{15}$$

$$\begin{array}{r} 1 \\ \cancel{2} \\ \hline 3 \\ 1 \end{array} \times \begin{array}{r} 9 \\ \cancel{1} \\ 5 \end{array} = \begin{array}{r} 3 \\ \hline 6 \\ 15 \end{array}$$

$$\frac{3}{15} \cdot \frac{7}{25} = \frac{21}{55}$$

The image shows a handwritten multiplication of two fractions. The first fraction is  $\frac{3}{15}$  with a horizontal line under the denominator 15. The second fraction is  $\frac{7}{25}$  with a horizontal line under the denominator 25. A dot is placed between the two fractions. The result is  $\frac{21}{55}$  with a horizontal line under the denominator 55. The numbers 22 and 11 are written below the first fraction, and the number 5 is written below the second fraction, but they are not connected to any other part of the calculation.

# Multiplying Fractions by Whole Numbers

$$\frac{10}{1} = 10 \quad 10 \quad 00 \quad \frac{2}{1} = 2$$

$$\frac{1}{\cancel{2}} \cdot \frac{\overset{5}{+10}}{1} = \frac{5}{1} = 5$$

## Multiplying Mixed Fractions

$$5\frac{1}{5} \cdot 3\frac{3}{4}$$

$$3\frac{2}{5} \cdot \frac{13}{4} = \frac{39}{2} = 19\frac{1}{2}$$



# Assignment

In your Big Ideas text book, do numbers 10 - 14 on page 59 & numbers 30 - 33, 47 - 49, 54 on page 60 & number 56 - 57 on page 61.

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# Essential Question

What does it mean to multiply fractions?

# Homework

Big Ideas Record and  
Pracce Journal

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