

Grade 5 • Unit 3 Worksheet

Multiplying and Dividing Fractions

Name: _____

Date: _____

Part A • Fraction x Fraction

Multiplying fractions means taking a fraction OF a fraction. Use diagrams to see why.

1. Find $\frac{1}{2} \times \frac{1}{3}$.

Draw a rectangle. Partition it into thirds going one way. Then partition each third in half going the other way.

Diagram:

How many small parts are there in the whole rectangle? _____

What is $\frac{1}{2} \times \frac{1}{3}$? _____

Why does the answer have 6 in the denominator?

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2. Without drawing, find each product. Then check by multiplying numerators and denominators.

a. $\frac{2}{3} \times \frac{3}{5} =$ _____

b. $\frac{5}{8} \times \frac{4}{5} =$ _____

c. $\frac{3}{4} \times \frac{7}{2} =$ _____

When you got a product, did you simplify? Show the simplification for part (c):

Part B • Estimating Fraction Products

3. Without computing exactly, decide whether each product is GREATER THAN, LESS THAN, or EQUAL TO the first factor.

a. $\frac{5}{6} \times \frac{4}{7}$ _____ $\frac{5}{6}$

b. $\frac{5}{6} \times \frac{7}{4}$ _____ $\frac{5}{6}$

c. $\frac{5}{6} \times \frac{5}{5}$ _____ $\frac{5}{6}$

How can you decide JUST by looking at the second factor?

4. Diego says ' $\frac{2}{3} \times 4 = \frac{8}{12}$ because you multiply the top and the bottom.' Is he right? If not, what is the right answer and what is the mistake?

Correct answer: _____

Diego's mistake:

Part C • Whole Number / Unit Fraction

5. How many groups of $\frac{1}{4}$ are in 3? That is, find $3 \div (\frac{1}{4})$.

Draw 3 wholes, each cut into fourths:

Count the fourths: _____

So $3 \div (\frac{1}{4}) =$ _____

Why is the answer BIGGER than 3?

6. Lin has 6 cups of flour. Each muffin needs $\frac{1}{3}$ cup. How many muffins can she make?

Equation: _____ / _____ = _____

Show your work:

Answer: _____ muffins

Part D • Unit Fraction / Whole Number

7. $\frac{1}{4}$ of a pizza is shared equally between 3 people. How much pizza does each person get?

Equation: _____ / _____ = _____

Draw a picture:

Answer: _____

8. Find each quotient.

a. $5 \div (\frac{1}{2}) =$ _____

b. $(\frac{1}{2}) \div 5 =$ _____

These look similar but the answers are very different. Why?

Part E • Thinking Deeply

9. Sara found $\frac{1}{3} \times \frac{1}{4} = \frac{1}{7}$ because ' $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ so you can use the same idea.' Is Sara right?

Correct answer for $\frac{1}{3} \times \frac{1}{4}$: _____

What did Sara confuse?

10. Write a story problem for each expression.

(a) $(1/2) \div 4$:

(b) $4 \div (1/2)$:

Why does the SAME pair of numbers give such different problems?

11. If $12 \times ? = 3$, what is ?

Answer: ? = _____

Explain why this is the same as $3 \div 12$:
