

Name \_\_\_\_\_

## Multiply Mixed Numbers

You can use a multiplication square to multiply mixed numbers.

**Multiply.**  $1\frac{2}{7} \times 1\frac{3}{4}$  Write the product in simplest form.

**Step 1** Write the mixed numbers outside the square.

$\times$	1	$\frac{2}{7}$
1		
$\frac{3}{4}$		

**Step 2** Multiply the number in each column by the number in each row.

$\times$	1	$\frac{2}{7}$
1	$1 \times 1$	$\frac{2}{7} \times 1$
$\frac{3}{4}$	$1 \times \frac{3}{4}$	$\frac{2}{7} \times \frac{3}{4}$

**Step 3** Write each product inside the square.

$\times$	1	$\frac{2}{7}$
1	1	$\frac{2}{7}$
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{14}$

**Step 4** Add the products inside the multiplication square.

$$1 + \frac{2}{7} + \frac{3}{4} + \frac{3}{14}$$

Find the least common denominator.

$$\frac{28}{28} + \frac{8}{28} + \frac{21}{28} + \frac{6}{28} = \frac{63}{28}$$

Simplify.

$$\frac{63}{28} = 2\frac{7}{28}, \text{ or } 2\frac{1}{4}$$

So,  $1\frac{2}{7} \times 1\frac{3}{4}$  is  $\underline{2\frac{1}{4}}$ .

**Find the product. Write the product in simplest form.**

1.  $2\frac{5}{8} \times 1\frac{1}{7}$

2.  $3\frac{1}{2} \times 12$

3.  $10\frac{5}{6} \times \frac{3}{5}$

4.  $7\frac{7}{10} \times \frac{10}{11}$

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**Use the Distributive Property to find the product.**

5.  $12 \times 2\frac{1}{2}$

6.  $15 \times 5\frac{1}{3}$

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## Problem Solving • Find Unknown Lengths

Zach built a rectangular deck in his backyard. The area of the deck is 300 square feet. The length of the deck is  $1\frac{1}{3}$  times as long as the width. What are the dimensions of the deck?

Read the Problem			
<p><b>What do I need to find?</b> I need to find <u>the dimensions of the deck</u>.</p>	<p><b>What information do I need to use?</b> The deck has an area of <u>300</u> square feet, and the length is <u><math>1\frac{1}{3}</math></u> as long as the width.</p>	<p><b>How will I use the information?</b> I will <u>guess</u> the length and width of the deck. Then I will <u>check</u> my guess and <u>revise</u> it if it is not correct.</p>	
Solve the Problem			
<p>I can try different values for the length of the deck, each that is <math>1\frac{1}{3}</math> times as long as the width. Then I can multiply the length and width and compare to the correct area.</p>			
Guess		Check	Revise
Width (in feet)	Length (in feet) ( $1\frac{1}{3}$ times the width)	Area of Deck (in square feet)	
12	$1\frac{1}{3} \times 12 = \underline{16}$	$12 \times 16 = \underline{192}$ too low	Try a <u>longer</u> width.
18	$1\frac{1}{3} \times 18 = \underline{24}$	$18 \times 24 = \underline{432}$ too high	Try a <u>shorter</u> width.
15	$1\frac{1}{3} \times 15 = \underline{20}$	$15 \times 20 = \underline{300}$ correct	
<p>So, the dimensions of the deck are <u>20</u> feet by <u>15</u> feet.</p>			

1. Abigail made a quilt that has an area of 4,800 square inches. The length of the quilt is  $1\frac{1}{3}$  times the width of the quilt. What are the dimensions of the quilt?

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2. The width of the mirror in Shannon's bathroom is  $\frac{4}{9}$  its length. The area of the mirror is 576 square inches. What are the dimensions of the mirror?

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