Answers

Illustrating Mixed Number Products
as Area Models

Name: ______________________________ Date: ________________

When multiplying a whole number by a fraction, it can be helpful to show the result using an area model. This can be done in a few easy steps!

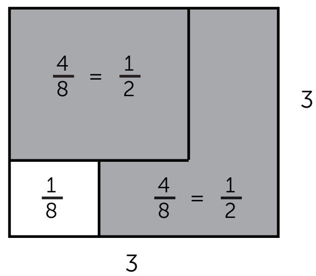
Consider $9 \times \frac{1}{8}$

Step 1: *Split the whole number into two factors:* ***9 1/8 = (3 x 3) x 1/8***
(This will insure you have a rectangular illustration.)

Step 2: *Draw the area model grid for length times height and include the fraction in each grid section.*

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	3
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	
	3		

Step 3: *Group fraction grid sections in easy chunks (like 1, 1/2, or 1/3) and add them:*



$$\frac{1}{2} + \frac{1}{2} + \frac{1}{8} = \mathbf{1\frac{1}{8}}$$

Step One Exercises

Directions: *Rewrite each expression to show each whole number as two factors and illustrate your area model grid with fraction parts.*

1. $8 \times \frac{1}{6} =$

$(2 \times 4) \times \frac{1}{6}$

	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
2	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
		4		

2. $9 \times \frac{1}{2} =$

$(3 \times 3) \times \frac{1}{2}$

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

3. $7 \times \frac{1}{3} =$

$(7 \times 1) \times \frac{1}{3}$

1	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$
				7			

Answers

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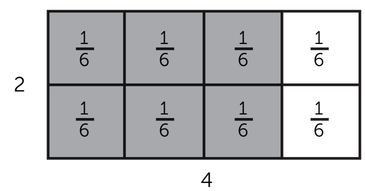
Step Two Exercises

Directions: *For each model above, group and shade your fraction parts in easy chunks (like 1, 1/2, or 1/3) and add them.*

1. $8 \times \frac{1}{6} =$

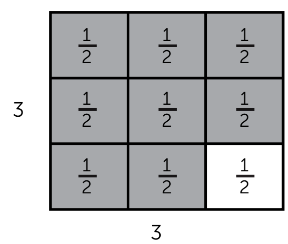
$8 \times \frac{1}{6} = 1\frac{2}{6}$



$\frac{6}{6}$ = 1 whole + $\frac{2}{6}$

2. $9 \times \frac{1}{2} =$

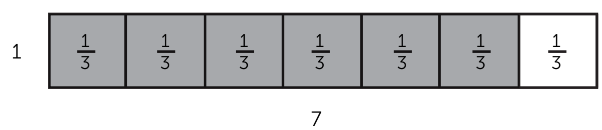
$9 \times \frac{1}{2} = 4\frac{1}{2}$



$\frac{8}{2}$ = 4 whole + $\frac{1}{2}$

3. $7 \times \frac{1}{3} =$

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



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

Say More About That!

Describe two things an area model reveals about a mixed number product.

Answers may vary, but student responses should reflect on end result area models for mixed number products.