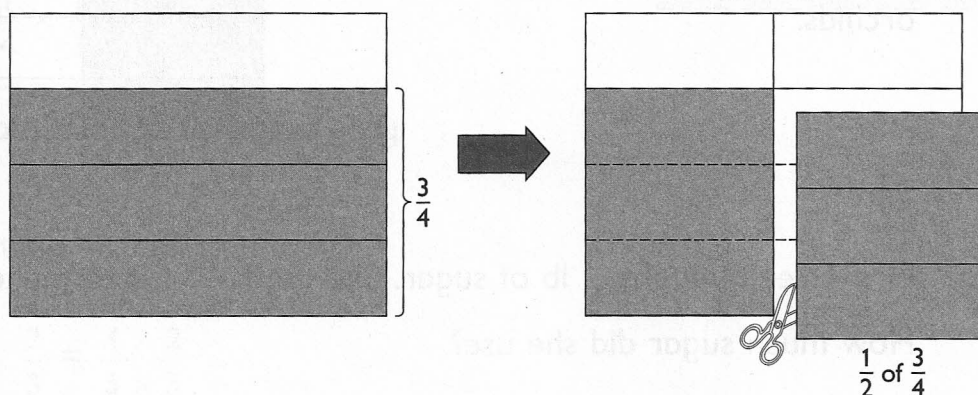


## 5 Product of Fractions

(a) Color  $\frac{3}{4}$  of a rectangle.

Cut out  $\frac{1}{2}$  of the colored parts.

What fraction of the rectangle is cut out?



$$\frac{1}{2} \text{ of } \frac{3}{4} = \frac{3}{8}$$

$\frac{3}{8}$  of the rectangle is cut out.

$$\begin{aligned} \frac{1}{2} \times \frac{3}{4} &= \frac{1 \times 3}{2 \times 4} \\ &= \frac{3}{8} \end{aligned}$$

Write  $\frac{1}{2}$  of  $\frac{3}{4}$  as  $\frac{1}{2} \times \frac{3}{4}$ .



(b) Color  $\frac{1}{2}$  of a rectangle.

Cut out  $\frac{3}{4}$  of the colored parts.

What fraction of the rectangle is cut out?

Is  $\frac{1}{2}$  of  $\frac{3}{4}$  the same as  $\frac{3}{4}$  of  $\frac{1}{2}$ ?

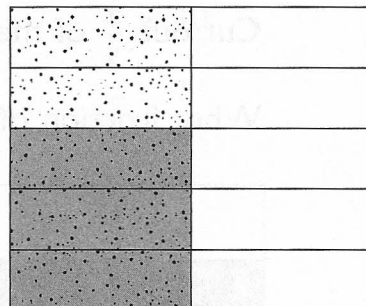
Write  $\frac{3}{4}$  of  $\frac{1}{2}$  as  $\frac{3}{4} \times \frac{1}{2}$ .



1. A flower garden occupies  $\frac{1}{2}$  of a piece of land.  $\frac{3}{5}$  of the garden is used for growing orchids. What fraction of the land is used for growing orchids?

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

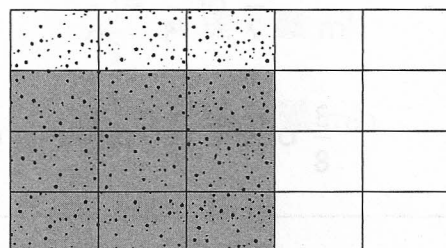
$\blacksquare$  of the land is used for growing orchids.



2. Mrs. Green bought  $\frac{3}{5}$  lb of sugar. She used  $\frac{3}{4}$  of it to make a cake. How much sugar did she use?

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

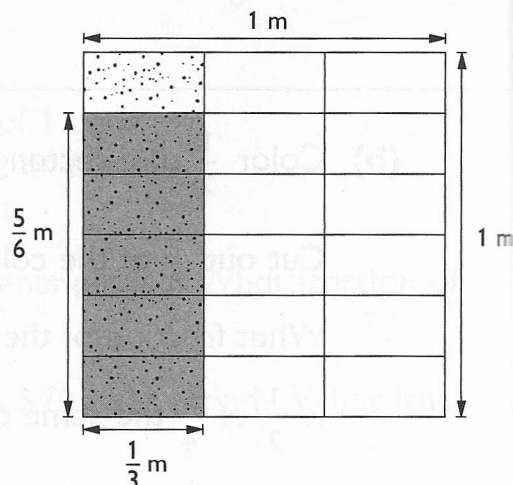
She used  $\blacksquare$  lb of sugar.



3. Find the area of a rectangle measuring  $\frac{1}{3}$  m by  $\frac{5}{6}$  m.

$$\frac{1}{3} \times \frac{5}{6} = \blacksquare$$

The area of the rectangle is  $\blacksquare$  m<sup>2</sup>.



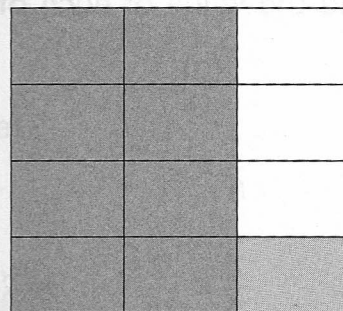
4.  $\frac{2}{3}$  of a wall is painted red.  $\frac{1}{4}$  of the remaining part is painted gray.  
What fraction of the wall is painted gray?

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

The remaining part is  $\frac{1}{3}$  of the wall.

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

$\blacksquare$  of the wall is painted gray.



5. Multiply  $\frac{4}{5}$  by  $\frac{2}{3}$ .

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

$$= \blacksquare$$

6. Find the product of  $\frac{9}{10}$  and  $\frac{5}{12}$ .

**Method 1:**

$$\frac{9}{10} \times \frac{5}{12} = \frac{\cancel{3}^1 \times \cancel{5}_1}{2 \times 10 \times \cancel{12}_4}$$

$$= \blacksquare$$

**Method 2:**

$$\frac{\cancel{9}^3}{2 \times 10} \times \frac{\cancel{5}^1}{\cancel{12}_4} = \frac{3 \times 1}{2 \times 4}$$

$$= \blacksquare$$

7. Find the value of

(a)  $\frac{1}{2}$  of  $\frac{1}{2}$

(b)  $\frac{1}{3}$  of  $\frac{3}{4}$

(c)  $\frac{1}{4}$  of  $\frac{8}{9}$

(d)  $\frac{5}{6} \times \frac{1}{5}$

(e)  $\frac{3}{4} \times \frac{5}{6}$

(f)  $\frac{4}{5} \times \frac{3}{8}$

(g)  $\frac{5}{8} \times \frac{4}{9}$

(h)  $\frac{1}{3} \times \frac{6}{7}$

(i)  $\frac{5}{6} \times \frac{7}{10}$

(j)  $\frac{15}{4} \times \frac{8}{3}$

(k)  $\frac{9}{4} \times \frac{16}{3}$

(l)  $\frac{12}{5} \times \frac{20}{9}$

## PRACTICE 3E

Find the value of each of the following in its simplest form.

(a)

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

2.  $\frac{2}{7} \times \frac{7}{10}$

3.  $\frac{5}{6} \times \frac{2}{5}$

4.  $\frac{16}{3} \times \frac{9}{4}$

5.  $\frac{20}{7} \times \frac{7}{4}$

(b)

$\frac{4}{9} \times \frac{5}{8}$

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

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

$\frac{14}{9} \times \frac{12}{7}$

$\frac{11}{5} \times \frac{20}{11}$

(c)

$\frac{7}{8} \times \frac{3}{7}$

$\frac{9}{10} \times \frac{5}{6}$

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

$\frac{10}{7} \times \frac{14}{5}$

$\frac{15}{8} \times \frac{8}{3}$

6. Shawn had a piece of string  $\frac{1}{2}$  m long. He used  $\frac{1}{3}$  of it to tie a box. Find the length of the string which was used to tie the box.
7. Kelley had  $\frac{3}{4}$  qt of cooking oil. She used  $\frac{2}{5}$  of it to fry some fish. How much oil did she use?
8. Mrs. Ruiz bought  $\frac{4}{5}$  kg of beef. She cooked  $\frac{3}{4}$  of it for lunch. How much beef did she cook?
9. Sally ate  $\frac{1}{6}$  of a cake and gave  $\frac{1}{5}$  of the remainder to her sister. What fraction of the cake did she give away?
10. Find the area of a rectangle which measures  $\frac{5}{8}$  m by  $\frac{3}{5}$  m.