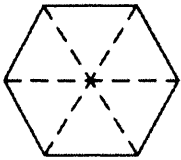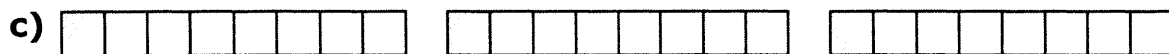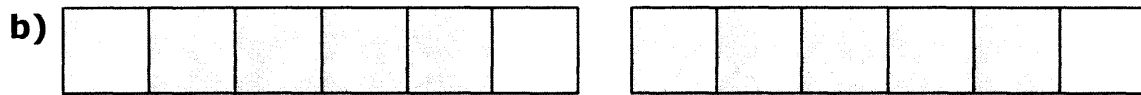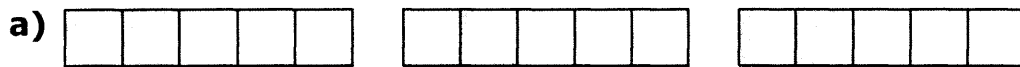# Target B-1 Extra Practice 1

1. What multiplication statement do the manipulatives represent? Assume that a

hexagon such as this one represents one whole.
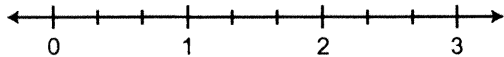
a)

_____

b)

_____

c)

_____

2. What multiplication statement does each diagram represent?
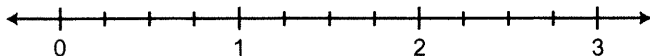
a)

_____

b)

_____

c)

_____

3. Determine the product using the number lines. Write the multiplication statement, including the product, on the blank line.

a) $4 \times \dfrac{1}{3}$

```
←—+—+—+—+—+—+—+—+—+—+—→
   0       1       2       3
```

_____

b) $3 \times \dfrac{3}{4}$

```
←—+—+—+—+—+—+—+—+—+—+—+—+—→
   0           1           2           3
```

_____

4. Determine each product.

a) $5 \times \dfrac{1}{3}$ = _____ **b)** $3 \times \dfrac{5}{8}$ = _____ **c)** $6 \times \dfrac{3}{10}$ = _____

5. Determine each product.

a) $\dfrac{1}{4}$ of 24 = _____ **b)** $\dfrac{2}{3}$ of 12 = _____ **c)** $\dfrac{7}{10}$ of 30 = _____

6. There are 28 students in a class. Three-quarters of the class takes the bus to school. How many students take the bus to school? Show your work.

7. A team won $\dfrac{5}{8}$ of the 40 games that they played. How many games did they win? _____

Extra Practice Answers

1. a) $4 \times \frac{1}{3}$

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

  c) $5 \times \frac{1}{6}$

2. a) $3 \times \frac{2}{5}$

  b) $2 \times \frac{5}{6}$

  c) $3 \times \frac{1}{8}$

3. a) $\frac{4}{3}$, and an appropriately marked number line

  b) $\frac{9}{4}$, and an appropriately marked number line

4. a) $\frac{5}{3}$

  b) $\frac{15}{8}$

  c) $\frac{18}{10} = \frac{9}{5}$

5. a) 6
  b) 8
  c) 21

6. 21

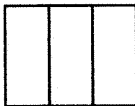**7.** 25

Target B-1 Extra Practice 2

1. Complete the diagrams to determine each quotient.

   a) $\frac{1}{4} \div 2 =$ _____

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

   c) $\frac{2}{3} \div 3 =$ _____

   d) $\frac{3}{4} \div 3 =$ _____

2. Fill in the blanks.

   a) If $\frac{1}{3}$ is divided into two equal parts, how large is each part?

   $\frac{1}{3} \div 2 =$ _____

   b) If $\frac{1}{6}$ is divided into two equal parts, how large is each part?

   $\frac{1}{6} \div 2 =$ _____

   c) If $\frac{1}{3}$ is divided into three equal parts, how large is each part?

   $\frac{1}{3} \div 3 =$ _____

   d) If $\frac{3}{4}$ is divided into three equal parts, how large is each part?

   $\frac{3}{4} \div 3 =$ _____

)

3. One-fourth of a cake is left. Conrad, Angela, and Francine want to share this portion equally. How much of the cake will they each get?

   a) Write a division statement to answer this question. Determine the quotient.

   _____

   b) Write a sentence answer.

   _____

   _____

4. Five-sixths of the grade 8 students in a school are taking band. These band students are divided into four equal groups. What fraction of the grade 8 students is in each of these groups?

   a) Write a division statement to answer this question. Determine the quotient. Explain your reasoning.

   _____

   _____

   b) Write a sentence answer.

   _____

   _____

Extra Practice Answers

1. a) $\frac{1}{8}$, and correctly marked fraction strip

   b) $\frac{1}{10}$, and correctly marked fraction strip

   c) $\frac{2}{9}$, and correctly marked fraction strip

   d) $\frac{3}{12}$ or $\frac{1}{4}$, and correctly marked fraction strip

2. a) $\frac{1}{6}$ **b)** $\frac{1}{12}$ **c)** $\frac{1}{9}$ **d)** $\frac{1}{4}$

3. a) $\frac{1}{4} \div 3 = \frac{1}{12}$

   b) They would each get $\frac{1}{12}$ of the cake.

4. a) $\frac{5}{6} \div 4 = \frac{5}{24}$

   **b)** $\frac{5}{24}$ of the grade 8 students would be in each of the groups.

Target B-1 Extra Practice 3

1. Fill in the blanks with the correct answer.

a) When paper folding to show $\frac{1}{2} \times \frac{2}{3}$, fold the paper into _____,

then into _____.

b) When drawing diagrams to show $\frac{3}{4} \times \frac{2}{3}$, draw line segments to show

_____, then _____.

c) The product of two proper fractions is _____ than either of the
fractions.

d) When estimating the product of two proper fractions, first decide if each

fraction is closer to _____, _____, or _____.

e) To multiply fractions, multiply the _____ by the _____,

and the _____ by the _____.

2. Determine each product using the rectangles below.

a) $\frac{1}{3} \times \frac{1}{3} =$ _____
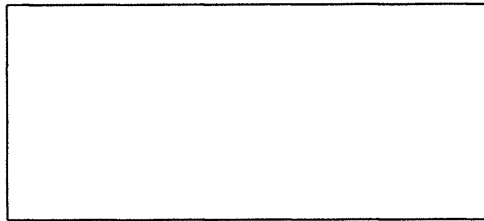
b) $\frac{2}{3} \times \frac{1}{4} =$ _____
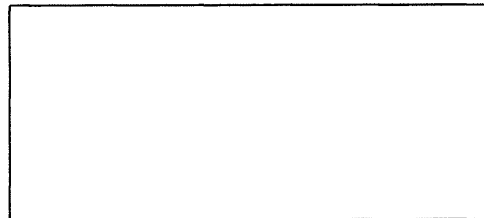
3. For each question, estimate and then calculate the product. Show your work. Express the final answer in lowest terms.

	Estimate the Product	Calculate the Product
a) $\frac{2}{3} \times \frac{3}{4}$		
b) $\frac{1}{3} \times \frac{4}{5}$		
c) $\frac{5}{8} \times \frac{1}{4}$		

**4.** In Mr. Saari's grade 8 class, $\frac{3}{8}$ of the students play hockey. Of these students, $\frac{1}{3}$ are on a "rep" team. What fraction of students in Mr. Saari's class is on a "rep" team? Show your work.

Extra Practice Answers

1. a) halves, thirds, *or* thirds, halves
   b) quarters, thirds, *or* thirds, quarters
   c) less
   d) 0, $\frac{1}{2}$, 1
   e) numerator, numerator, denominator, denominator

2. a) $\frac{1}{9}$, and a correctly marked rectangle

   b) $\frac{2}{12}$, and a correctly marked rectangle

3. a) $\frac{1}{2} \times 1 = \frac{1}{2}$; $\frac{1}{2}$

   b) $\frac{1}{2} \times 1 = \frac{1}{2}$; $\frac{4}{15}$

   c) $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$; $\frac{5}{32}$

4. $\frac{1}{8}$ of Mr. Saari's is on a "rep" team.

Target B-1 Extra Practice 4

1. The diagram below models $2\frac{1}{2} \times 3\frac{2}{3}$. Use the diagram to complete the questions.
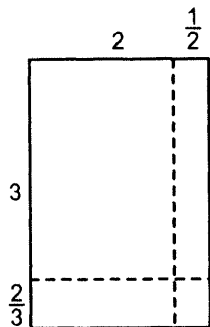
a) Fill in the blanks to find the partial areas. Label the area of each of the regions in the diagram as you calculate it below.

Partial Areas:

$2 \times 3 = 6$

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

_____ $\times \frac{1}{2} =$ _____

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

b) Add the areas: $6 +$ _____ $+$ _____ $+$ _____ $+$ _____ $=$ _____

c) Estimate the product: _____ $\times$ _____ $=$ _____

d) Write the mixed numbers as improper fractions and multiply:

$2\frac{1}{2} = \dfrac{\Box}{\Box}$, $3\frac{2}{3} = \dfrac{\Box}{\Box}$, $\dfrac{\Box}{\Box} \times \dfrac{\Box}{\Box} = \dfrac{\Box}{\Box}$

Express the answer in lowest terms. _____

2. Show the improper fractions as mixed numbers. Write the fraction in lowest terms. The first line is partially completed.

a) $\dfrac{15}{4} = \dfrac{4}{4} + \dfrac{4}{4} + \dfrac{4}{4} + \dfrac{\Box}{\Box} =$ _____

b) $\dfrac{9}{2} =$ _____

c) $\dfrac{26}{12} =$ _____

d) $\dfrac{20}{6} =$ _____

3. Complete the table.

	Multiplication of Mixed Numbers	Multiplication of Improper Fractions	Product Expressed as Improper Fraction	Product Expressed as Mixed Number
Example	$1\frac{2}{3} \times 2\frac{1}{4}$	$\frac{5}{3} \times \frac{9}{4}$	$\frac{45}{12}$	$3\frac{9}{12} = 3\frac{3}{4}$
a)	$1\frac{1}{3} \times 1\frac{1}{3}$			
b)	$2\frac{1}{3} \times 1\frac{1}{2}$			
c)	$1\frac{3}{4} \times 1\frac{2}{5}$			
d)	$1\frac{5}{6} \times 2\frac{1}{2}$			

4. Jasmine worked $3\frac{1}{4}$ h a day for five days. How many hours did Jasmine work altogether? Show your work.

Extra Practice Answers

1. a) $2 \times \frac{2}{3} = \frac{4}{3}$; $3 \times \frac{1}{2} = \frac{3}{2}$; $\frac{2}{3} \times \frac{1}{2} = \frac{2}{6}$

b) $6 + 1\frac{1}{3} + 1\frac{1}{2} + \frac{2}{6}$

$= 8 + \frac{2}{6} + \frac{3}{6} + \frac{2}{6}$

$= 8\frac{7}{6} = 9\frac{1}{6}$

c) Estimates may vary. Example: $3 \times 4 = 12$

d) $\frac{5}{2}$; $\frac{11}{3}$; $\frac{5}{2} \times \frac{11}{3} = \frac{55}{6} = 9\frac{1}{6}$

2. a) $\frac{3}{4} = 3\frac{3}{4}$

b) $\frac{2}{2} + \frac{2}{2} + \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = 4\frac{1}{2}$

c) $\frac{12}{12} + \frac{12}{12} + \frac{2}{12} = 2\frac{2}{12} = 2\frac{1}{6}$

d) $\frac{6}{6} + \frac{6}{6} + \frac{6}{6} + \frac{2}{6} = 3\frac{2}{6} = 3\frac{1}{3}$

3. a) $\frac{4}{3} \times \frac{4}{3}$; $\frac{16}{3}$; $5\frac{1}{3}$

b) $\frac{7}{3} \times \frac{3}{2}$; $\frac{21}{6}$; $3\frac{3}{6} = 3\frac{1}{2}$

c) $\frac{7}{4} \times \frac{7}{5}$; $\frac{49}{20}$; $2\frac{9}{20}$

d) $\frac{11}{6} \times \frac{5}{2}$; $\frac{55}{12}$; $4\frac{7}{12}$
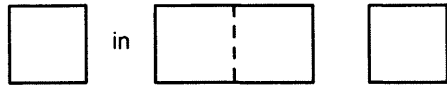
4. $16\frac{1}{4}$ h

Target B-1 Extra Practice 5

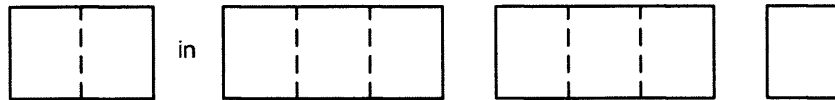**1.** Fill in the blanks. Then, write the division statement, including the quotient, that matches the diagram.

Example

How many $\frac{1}{4}$s in 1? $1 \div \frac{1}{4} = 4$

a) How many _____ in _____? _____

b) How many _____ in _____? _____

2. Divide using a common denominator. Show your work.

a) $\frac{3}{4} \div \frac{1}{8} =$ _____   **b)** $\frac{5}{6} \div \frac{2}{3} =$ _____

c) $2\frac{1}{2} \div \frac{3}{4} =$ _____   **d)** $3\frac{7}{10} \div 1\frac{1}{5} =$ _____

3. Write the reciprocal.

a) $\frac{1}{3}$ _____ **b)** $\frac{5}{6}$ _____ **c)** $2\frac{1}{3}$ _____ **d)** $4\frac{2}{5}$ _____

4. Divide using multiplication. Show your work.

a) $\frac{3}{5} \div \frac{2}{3} =$ _____   **b)** $2\frac{1}{4} \div 1\frac{1}{2} =$ _____

c) $\frac{7}{8} \div \frac{1}{6} =$ _____   **d)** $8 \div 1\frac{3}{4} =$ _____

5. For each question below, do the following:
- Write the division statement that matches the problem.
- Estimate the answer, showing your work.
- Divide, and then write the sentence answer.

a) How many $\frac{3}{4}$ cup portions are in $1\frac{1}{2}$ cups of sugar?

Division Statement	Estimate	Calculation

b) Sabrina has $3\frac{1}{3}$ L of ice cream to share equally among herself and her nine friends at her birthday party. How much ice cream will each get?

Division Statement	Estimate	Calculation

Extra Practice Answers

1. a) $\frac{1}{2}$; $1\frac{1}{2}$; $1\frac{1}{2} \div \frac{1}{2} = 3$

b) $\frac{2}{3}$; $2\frac{1}{3}$; $2\frac{1}{3} \div \frac{2}{3} = 3\frac{1}{2}$

2. a) 6   **b)** 1 $\frac{1}{4}$ **c)** $3\frac{1}{3}$ **d)** $3\frac{1}{12}$

3. a) 3   **b)** $\frac{6}{5}$ *or* $1\frac{1}{5}$ **c)** $\frac{3}{7}$ **d)** $\frac{5}{22}$

4. a) $\frac{9}{10}$ **b)** $1\frac{1}{2}$ **c)** $5\frac{1}{4}$ **d)** $4\frac{4}{7}$

5. a) $1\frac{1}{2} \div \frac{3}{4}$; $2 \div 1 = 2$. There are two portions.

b) $3\frac{1}{3} \div 10$; $3 \div 10 = \frac{3}{10}$. Each will get $\frac{1}{3}$.

Lesson 3.1: Using Models to Multiply Fractions and Whole Numbers

1. Write each repeated addition as a multiplication statement in two ways.

a) $\dfrac{3}{5} + \dfrac{3}{5} + \dfrac{3}{5} + \dfrac{3}{5} + \dfrac{3}{5}$ _____

b) $\dfrac{7}{8} + \dfrac{7}{8} + \dfrac{7}{8} + \dfrac{7}{8}$ _____

c) $\dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9} + \dfrac{2}{9}$ _____

2. Multiply. Draw a picture to show each answer.

a) $7 \times \dfrac{3}{5}$ b) $\dfrac{6}{10} \times 4$ c) $8 \times \dfrac{5}{4}$ d) $\dfrac{1}{10} \times 6$

3. Ella baby-sits for $\dfrac{3}{4}$ h before school each morning.

a) How many hours does she baby-sit in a 5-day work week? _____

b) How many hours does she baby-sit in 4 weeks? _____

4. Multiply. Draw a picture to show each answer. Explain any patterns you see.

a) $6 \times \dfrac{3}{4}$ b) $9 \times \dfrac{6}{12}$ c) $6 \times \dfrac{9}{12}$ d) $9 \times \dfrac{1}{2}$

_____

_____

5. Ian's monthly allowance is $21. In January he starts saving for a birthday gift in June. Each month he saves $\dfrac{2}{3}$ of his allowance.
The gift he wants to buy costs $110. Will Ian have enough money? Explain.

_____

Extra Practice 1 Answers

1. a) $\frac{3}{5} \times 5$ or $5 \times \frac{3}{5}$ b) $\frac{7}{8} \times 4$ or $4 \times \frac{7}{8}$

   c) $\frac{2}{9} \times 8$ or $8 \times \frac{2}{9}$

2. a) $\frac{21}{5} = 4\frac{1}{5}$ b) $\frac{24}{10} = 2\frac{4}{10} = 2\frac{2}{5}$

   c) $\frac{40}{4} = 10$ d) $\frac{6}{10} = \frac{3}{5}$

3. a) $\frac{15}{4}$ h $= 3\frac{3}{4}$ h   b) $\frac{60}{4}$ h $= 15$ h

4. All the answers are $\frac{9}{2} = 4\frac{1}{2}$ as a mixed number.

   The fractions in parts a and c are equivalent. In parts b and c, the whole number and numerator are interchanged. The fractions in parts b and d are equivalent. The pictures show that all the questions have the same product.

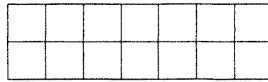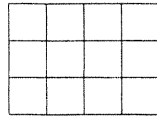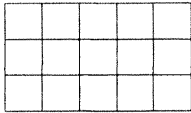5. In the six months from January to June, Ian will save $\frac{2}{3}$ of $21 = $14.

   $14 × 6 = $84
   Ian needs $110 − $84 = $26

Extra Practice 2

Lesson 3.2: Using Models to Multiply Fractions

1. Use the rectangle to find each product.

   a) $\frac{1}{3} \times \frac{2}{5}$ **b)** $\frac{2}{3} \times \frac{3}{4}$ **c)** $\frac{5}{7} \times \frac{1}{2}$

2. Draw a rectangle on grid paper to find each product.

   a) $\frac{5}{8} \times \frac{1}{3}$ **b)** $\frac{3}{4} \times \frac{4}{5}$

   c) $\frac{5}{7} \times \frac{1}{4}$ **d)** $\frac{3}{5} \times \frac{4}{9}$

   e) $\frac{3}{6} \times \frac{2}{4}$ **f)** $\frac{4}{9} \times \frac{4}{10}$

   g) $\frac{2}{3} \times \frac{1}{2}$ **h)** $\frac{4}{5} \times \frac{2}{5}$

3. One-third of the students in Mrs. Hayko's class walk to school.
   Of the students who do not walk, four-fifths take the bus.
   a) Use counters to illustrate the product.
   b) What fraction of the students in Mrs. Hayko's class take the bus to school? _____
   c) How many students might there be in her class?

   _____

4. Which of the following statements are equivalent?
   Draw area models to explain your answers.

   a) $\frac{3}{5}$ of $\frac{2}{9}$ **b)** $\frac{3}{2}$ of $\frac{5}{9}$ _____

   c) $\frac{2}{5}$ of $\frac{3}{9}$ **d)** $\frac{5}{2}$ of $\frac{3}{9}$ _____

   e) $\frac{3}{5}$ of $\frac{9}{2}$ **f)** $\frac{9}{5}$ of $\frac{3}{2}$ _____

Extra Practice 2 Answers

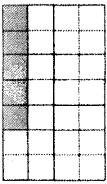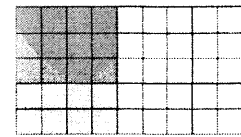**1. a)** $\dfrac{2}{15}$ **b)** $\dfrac{1}{2}$ **c)** $\dfrac{5}{14}$
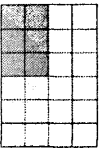
2. a) $\dfrac{5}{24}$

b) $\dfrac{3}{5}$

c) $\dfrac{5}{28}$

d) $\dfrac{4}{15}$

e) $\dfrac{1}{4}$

f) $\dfrac{8}{45}$
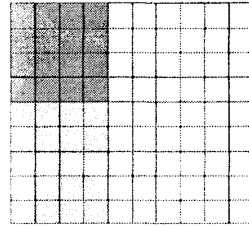
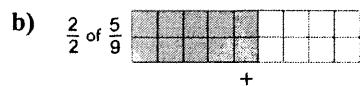**g)** $\dfrac{1}{3}$

h) $\dfrac{8}{25}$
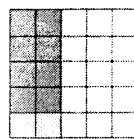
3. a)
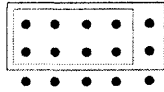
b) $\dfrac{16}{30} = \dfrac{8}{15}$

c) For example, 15 or 30 students

4. a and c both equal $\frac{2}{15}$; b and d both equal $\frac{5}{6}$;

e and f both equal $\frac{27}{10}$

a)

b) $\frac{2}{2}$ of $\frac{5}{9}$

+

$\frac{1}{2}$ of $\frac{5}{9}$

c)

d) $\frac{2}{2}$ of $\frac{3}{9}$

$\frac{2}{2}$ of $\frac{3}{9}$

$\frac{1}{2}$ of $\frac{3}{9}$

e)

$\frac{2}{2}$ $\qquad$ $\frac{2}{2}$ $\qquad$ $\frac{2}{2}$ $\qquad$ $\frac{2}{2}$ $\qquad$ $\frac{1}{2}$

$\frac{3}{5}$ of $\frac{9}{2}$

f)

$\frac{2}{2}$ $\qquad$ $\frac{1}{2}$

$\frac{5}{5}$ of $\frac{3}{2}$

+ $\qquad$ +

$\frac{4}{5}$ of $\frac{3}{2}$
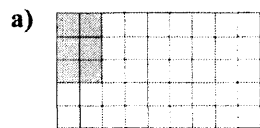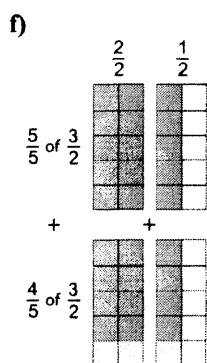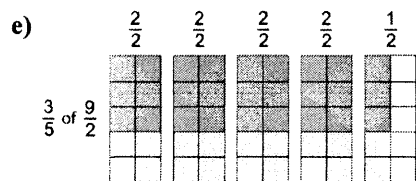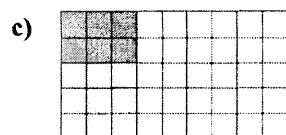
Lesson 3.3: Multiplying Fractions

1. Multiply. Estimate to check.

    a) $\dfrac{2}{3} \times \dfrac{6}{9}$

    b) $\dfrac{2}{4} \times \dfrac{3}{5}$

    c) $\dfrac{5}{2} \times \dfrac{1}{4}$

    d) $\dfrac{7}{3} \times \dfrac{5}{3}$

    e) $\dfrac{12}{8} \times \dfrac{4}{3}$

    f) $\dfrac{2}{5} \times \dfrac{1}{2}$

    g) $\dfrac{6}{7} \times \dfrac{1}{3}$

    h) $\dfrac{10}{3} \times \dfrac{6}{8}$

2. Daphne replaced light bulbs in her mother's store.
    She had $\dfrac{3}{4}$ of a box of light bulbs. She used $\dfrac{1}{3}$ of the bulbs.

    a) What fraction of the box of light bulbs was left?

    _____

    b) How many light bulbs might be in a full box? Explain.

    _____

3. Estimate each product.

    a) $\dfrac{7}{2} \times \dfrac{7}{8}$

    b) $\dfrac{15}{12} \times \dfrac{1}{3}$

    c) $\dfrac{32}{5} \times \dfrac{5}{3}$

4. The product of two fractions is $\dfrac{4}{5}$. One fraction is $\dfrac{2}{3}$.
    What is the other fraction?

    _____

    _____

5. Multiply. Simplify before multiplying if possible.

    a) $\dfrac{7}{9} \times \dfrac{18}{21}$

    b) $\dfrac{9}{10} \times \dfrac{5}{18}$

    c) $\dfrac{4}{15} \times \dfrac{20}{28}$

    d) $\dfrac{7}{20} \times \dfrac{10}{21}$

Extra Practice 3 Answers

1. a) $\frac{4}{9}$ **b)** $\frac{3}{10}$ **c)** $\frac{5}{8}$ **d)** $\frac{35}{9}$

    e) 2   **f)** $\frac{1}{5}$ **g)** $\frac{2}{7}$ **h)** $2\frac{1}{2}$

2. a) $\frac{1}{2}$ of the box of light bulbs was left.

    b) A dozen, or any multiple of 12, because $\frac{3}{4}$ and $\frac{1}{3}$ have a common denominator of 12.

3. a) $\frac{7}{2}$ is $3\frac{1}{2}$ and $\frac{7}{8}$ is around 1, the product should be about $3\frac{1}{2}$.

    b) $\frac{15}{12}$ is close to 1, $1 \times \frac{1}{3} = \frac{1}{3}$; the product should be about $\frac{1}{3}$.

    c) $\frac{32}{5}$ is close to 6 and $\frac{5}{3}$ is between 1 and 2, closer to 2, so the product should be about 12.
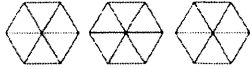
4. $\frac{6}{5}$

5. a) $\frac{2}{3}$ **b)** $\frac{1}{4}$ **c)** $\frac{4}{21}$ **d)** $\frac{1}{6}$

Extra Practice 4

Lesson 3.4: Multiplying Mixed Numbers

1. Write the mixed number and improper fraction represented by each picture.
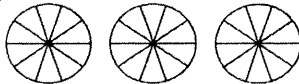
   a)

   b)

   c)

2. Use estimation. Which suggested estimate is closer to the given product?

   a) $3\frac{2}{3} \times 1\frac{7}{9}$ 3 or 8

   b) $2\frac{2}{5} \times 4\frac{1}{18}$ 8 or 15

   c) $2\frac{9}{11} \times \frac{15}{16}$ 3 or 6

3. Multiply. Estimate to check.

   a) $2\frac{3}{5} \times 1\frac{1}{2}$

   b) $4\frac{6}{8} \times 3\frac{2}{3}$

   c) $5\frac{1}{6} \times 2\frac{3}{4}$

   d) $\frac{5}{8} \times 3\frac{4}{5}$

4. Amber made $5\frac{3}{4}$ pitchers of iced tea for her friends.

   They drank $\frac{2}{3}$ of the iced tea.

   How many pitchers of iced tea did they drink?

5. Carlos has $1\frac{1}{2}$ cups of flour.

   He uses $\frac{3}{4}$ of the flour to make pizzas for the school fundraiser.

   How much flour does Carlos use?

Extra Practice 4 Answers

1. a) $2\frac{1}{2}$ or $\frac{5}{2}$ b) $4\frac{3}{4}$ or $\frac{19}{4}$ c) $2\frac{7}{10}$ or $\frac{27}{10}$

2. a) 8   b) 8   c) 3

3. a) $3\frac{9}{10}$ b) $17\frac{5}{12}$ c) $14\frac{5}{24}$ d) $2\frac{3}{8}$
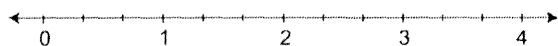
4. $3\frac{5}{6}$

5. $1\frac{1}{8}$

Extra Practice 5

Lesson 3.5: Dividing Whole Numbers and Fractions

1. Use a number line to find each quotient.

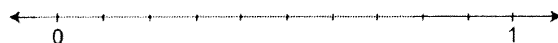   **a) i)** $4 \div \dfrac{1}{3}$ **ii)** $4 \div \dfrac{2}{3}$

    b) i) $\dfrac{4}{5} \div 2$ **ii)** $\dfrac{4}{5} \div 4$

2. Find each quotient. Use fraction circles to illustrate the answers.

    a) $2 \div \dfrac{1}{3}$ **b)** $3 \div \dfrac{3}{4}$ **c)** $4 \div \dfrac{2}{3}$ **d)** $5 \div \dfrac{1}{5}$

3. Use a number line to find each quotient.

    a) $\dfrac{3}{4} \div 3$ **b)** $\dfrac{6}{5} \div 3$ **c)** $\dfrac{5}{8} \div 4$ **d)** $\dfrac{2}{3} \div 4$

4. Samuel uses $\dfrac{2}{3}$ of a roll of ribbon to tie one balloon for the school dance.

    He has 12 rolls of ribbon.
    How many balloons can he tie?

5. A student knows that $\dfrac{3}{4} \times 4$ is the same as $4 \times \dfrac{3}{4}$.
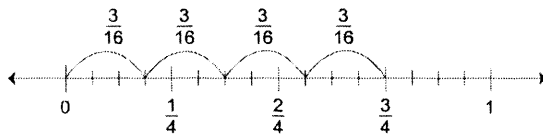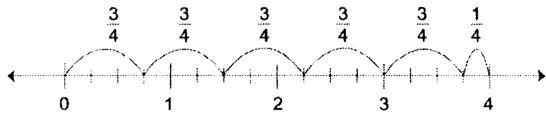
    The student assumes that $4 \div \dfrac{3}{4}$ is the same as $\dfrac{3}{4} \div 4$.

    Is the student correct?
    Use number lines to prove or disprove this assumption.

Extra Practice 5 Answers

1. a) i) 12   **ii)** 6   **b) i)** $\frac{2}{5}$ **ii)** $\frac{1}{5}$

2. a) 6   **b)** 4   **c)** 6   **d)** 25

3. a) $\frac{1}{4}$ **b)** $\frac{2}{5}$ **c)** $\frac{5}{32}$ **d)** $\frac{1}{6}$

4. 18 balloons

5. No, $4 \div \frac{3}{4} = 5\frac{1}{3}$ and $\frac{3}{4} \div 4 = \frac{3}{16}$

Extra Practice 6

Lesson 3.6: Dividing Fractions

1. Write the reciprocal of each fraction.
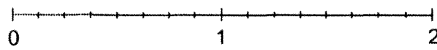
   a) $\frac{1}{3}$　　　　b) $\frac{8}{7}$　　　　c) $\frac{9}{11}$　　　　d) $\frac{17}{12}$

2. Use a copy of each number line to illustrate each quotient.
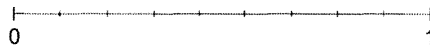
   a) $\frac{10}{8} \div \frac{5}{8}$

   b) $\frac{12}{10} \div \frac{1}{5}$

   c) $\frac{7}{9} \div \frac{2}{3}$

   d) $\frac{7}{12} \div \frac{1}{4}$

3. Use multiplication to find each quotient.

   a) $\frac{7}{5} \div \frac{1}{3}$　　　　b) $\frac{3}{8} \div \frac{2}{5}$　　　　c) $\frac{4}{10} \div \frac{5}{7}$　　　　d) $\frac{1}{6} \div \frac{1}{7}$

4. Use common denominators to find each quotient.

   a) $\frac{5}{12} \div \frac{1}{4}$　　　　b) $\frac{7}{5} \div \frac{4}{10}$　　　　c) $\frac{2}{3} \div \frac{1}{2}$　　　　d) $\frac{5}{6} \div \frac{3}{4}$
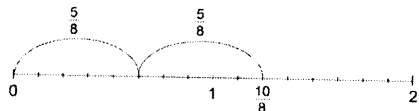
5. Write three division questions that have $\frac{3}{8}$ as their quotient.

Extra Practice 6 Answers

1. a) $\dfrac{3}{1}$ **b)** $\dfrac{7}{8}$ **c)** $\dfrac{11}{9}$ **d)** $\dfrac{12}{17}$

2. a) 2

b) 6
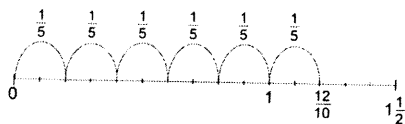
c) $1\dfrac{1}{6}$
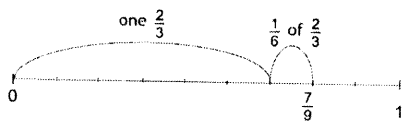
d) $2\dfrac{1}{3}$
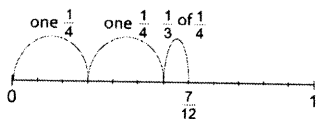
3. a) $4\dfrac{1}{5}$ **b)** $\dfrac{15}{16}$ **c)** $\dfrac{14}{25}$ **d)** $1\dfrac{1}{6}$

4. a) $1\dfrac{2}{3}$ **b)** $3\dfrac{1}{2}$ **c)** $1\dfrac{1}{3}$ **d)** $1\dfrac{1}{9}$

5. a) $\dfrac{7}{8} \div \dfrac{7}{3} = \dfrac{3}{8}$ **b)** $\dfrac{9}{16} \div \dfrac{3}{2} = \dfrac{3}{8}$ **c)** $\dfrac{11}{12} \div \dfrac{22}{9} = \dfrac{3}{8}$

Lesson 3.7: Dividing Mixed Numbers

1. Write each mixed number as an improper fraction.
   a) $2\frac{2}{7}$
   b) $1\frac{1}{6}$
   c) $3\frac{5}{8}$
   d) $7\frac{3}{5}$

2. Use common denominators to find each quotient.
   a) $1\frac{1}{2} \div \frac{1}{8}$
   b) $2\frac{3}{4} \div 1\frac{1}{16}$
   c) $4\frac{3}{5} \div 1\frac{1}{15}$
   d) $5\frac{1}{2} \div \frac{7}{8}$

3. Use multiplication to find each quotient.
   a) $3\frac{3}{5} \div 1\frac{3}{20}$
   b) $6\frac{1}{4} \div 2\frac{3}{5}$
   c) $5\frac{7}{8} \div 2\frac{5}{12}$
   d) $6\frac{2}{3} \div 7\frac{1}{6}$

4. Divide. Estimate to check.
   a) $2\frac{2}{3} \div 1\frac{1}{4}$
   b) $3\frac{1}{5} \div 2\frac{3}{4}$
   c) $1\frac{5}{8} \div 2\frac{4}{5}$
   d) $3\frac{1}{3} \div 2\frac{1}{2}$

5. Which statement has the greatest value? How do you know?
   a) $2\frac{3}{4} \div \frac{1}{3}$
   b) $2\frac{3}{4} + \frac{1}{3}$
   c) $2\frac{3}{4} \times \frac{1}{3}$
   d) $2\frac{3}{4} - \frac{1}{3}$
   e) $2\frac{3}{4} \div \frac{3}{1}$
   f) $2\frac{3}{4} + \frac{3}{4}$

Extra Practice 7 Answers

1. a) $\frac{16}{7}$ **b)** $\frac{7}{6}$ **c)** $\frac{29}{8}$ **d)** $\frac{38}{5}$

2. a) 12   **b)** $2\frac{10}{17}$ **c)** $2\frac{7}{16}$ **d)** $6\frac{2}{7}$

3. a) $3\frac{3}{23}$ **b)** $2\frac{21}{52}$ **c)** $2\frac{25}{58}$ **d)** $\frac{40}{43}$

4.a) $2\frac{2}{15}$ **b)** $1\frac{9}{55}$ **c)** $\frac{65}{112}$ **d)** $1\frac{1}{3}$

5. $2\frac{3}{4} \div \frac{1}{3} = 8\frac{1}{4}$; dividing a number by $\frac{1}{3}$ will give a greater answer than adding $\frac{1}{3}$ to the number, multiplying the number by $\frac{1}{3}$, subtracting $\frac{1}{3}$ from the number, or dividing the number by 3; adding $\frac{3}{4}$ to the number will give a lesser answer than dividing by $\frac{1}{3}$.

Lesson 3.8: Solving Problems with Fractions

Solve the following problems.
Estimate to check the reasonableness of your solutions.

1. During a one-hour phone-in talk show, 8 callers made calls that took $3\frac{1}{4}$ min each.

    a) How many minutes were used by the 8 callers?

    b) What fraction of the hour was used by these callers?

    c) How many minutes were left for other callers?

    d) What fraction of the hour was left in the talk show for other callers?

2. Ms. Lecky ordered pizza for a party. $1\frac{5}{8}$ of the vegetarian pizza and

    $\frac{2}{3}$ of the ham and pineapple pizza were not eaten. How much pizza was left?

3. A dressmaker needs $3\frac{3}{8}$ m of fabric to sew one dress.
    How many dresses can the dressmaker make with 28 m of fabric?

4. A dock is $7\frac{3}{4}$ m high. The portion of the dock above water one day was measured at $2\frac{2}{5}$ m high.
    How much of the dock structure was above water that day?

Extra Practice 8 Answers

1. a) 26 min   b) $\frac{13}{30}$ c) 34   d) $\frac{17}{30}$

2. $2\frac{7}{24}$

3. 8 with $\frac{8}{27}$ left over

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

Target B-2 Extra Practice 1

1. List the following in the order of operations for fractions.

addition/subtraction (left to right), brackets, multiplication/division (left to right)

First _____

Second _____

Third _____

2. Decide where each of the following statements is true or false. Circle the word *True* or *False*. If the statement is false, rewrite the answer to make it true.

a) **True/False** $5 - 3 \times \frac{1}{2} = 1$ _____

b) **True/False** $2\frac{7}{8} - 2 \times \frac{3}{4} = \frac{21}{32}$ _____

c) **True/False** $125 \times \frac{1}{5} - 5 \div \frac{1}{3} = 10$ _____

3. Calculate. Show your work.

a) $\left(\frac{5}{8} - \frac{1}{2}\right) \times \frac{5}{6}$

b) $\frac{3}{4} \times \frac{8}{9} - \frac{1}{9} \div \frac{2}{3}$

c) $2\frac{2}{3} - 1\frac{1}{2} \div \left(4\frac{2}{3} + \frac{1}{3}\right)$

4. For each question below, do the following:
- Write the expression that matches the problem.
- Calculate. Show your work.
- Include a sentence answer.

a) Super Mart had a sale. The first $200 Sara's father spent was discounted by $\frac{1}{10}$, and the amount he spent over $200 was discounted by $\frac{1}{5}$. Sara's father bought $275 worth of groceries. What was the total discount?

b) In Mr. Jones's grade 8 class 20 students, or $\frac{5}{7}$ of the class, bought class photos. In Ms. Floyd's grade 8 class 18 students, or $\frac{2}{3}$ of the class, bought class photos. How many students were there in total in Mr. Jones's and Ms. Floyd's classes?

Extra Practice Answers

1. brackets, multiplication/division, addition/subtraction

2. a) F; $5 - 3 \times \frac{1}{2} = 3\frac{1}{2}$

   b) F; $2\frac{7}{8} - 2 \times \frac{3}{4} = 1\frac{3}{8}$

   c) T

3. a) $\frac{5}{48}$ **b)** $\frac{1}{2}$ **c)** $2\frac{11}{30}$

4. a) $200 \times \frac{1}{10} + (275 - 200) \times \frac{1}{5}$; 35.   The total discount was $35.

   b) $20 \div \frac{5}{7} + 18 \div \frac{2}{3}$; 55. There were 55 students in total.

Lesson 3.9: Order of Operations with Fractions

1. Evaluate.

   a) $\frac{5}{6} - \frac{2}{5} \times (\frac{1}{2} + \frac{1}{6})$

   b) $\frac{5}{6} - \frac{2}{5} \times \frac{1}{2} + \frac{1}{6}$

   c) $(\frac{5}{6} - \frac{2}{5}) \times (\frac{1}{2} + \frac{1}{6})$

2. What do you notice about the expressions and answers in question 1? Explain.

3. Emma thinks the answer to $1\frac{1}{2} \div \frac{1}{4} \times \frac{2}{3}$ is the same as the answer to $1\frac{1}{2} \div (\frac{1}{4} \times \frac{2}{3})$. Is Emma correct? Explain your thinking.

4. Evaluate. Show all steps.

   a) $\frac{2}{5} \times (\frac{1}{4} + \frac{2}{3}) - \frac{3}{10}$

   b) $\frac{7}{9} - (\frac{1}{3} + \frac{5}{6}) \div 3$

   c) $4 \div \frac{2}{3} - 3\frac{1}{4} + \frac{7}{12}$

5. Add brackets to the expression $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$, to find as many different expressions and solutions, as you can.

   $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$ $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$ $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$

   $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$ $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$ $\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4}$

Extra Practice 9 Answers

1. a) $\frac{17}{30}$ **b)** $\frac{4}{5}$ **c)** $\frac{13}{45}$

2. All the answers are different. Each question has the same numbers in the same order with the same operations. The only difference is the placement of brackets, thus the operations are completed in a different order resulting in different answers.

3. Emma is incorrect: $1\frac{1}{2} \div \frac{1}{4} \times \frac{2}{3} = 4$ and $1\frac{1}{2} \div (\frac{1}{4} \times \frac{2}{3}) = 9$, in the first expression division occurs before multiplication, the division results in 6 and $\frac{2}{3}$ of 4 is 6. In the second case, the multiplication is done first because of the brackets $\frac{1}{4} \times \frac{2}{3} = \frac{1}{6}$ and $\frac{3}{2} \div \frac{1}{6} = 9$.

4. a) $\frac{1}{15}$ **b)** $\frac{7}{18}$ **c)** $3\frac{1}{3}$

5. Possible solutions:

$$\frac{3}{10} + \frac{1}{5} \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4} = \frac{37}{60}$$

$$(\frac{3}{10} + \frac{1}{5}) \div \frac{1}{2} - \frac{1}{3} \times \frac{1}{4} = \frac{11}{12}$$

$$\frac{3}{10} + \frac{1}{5} \div (\frac{1}{2} - \frac{1}{3}) \times \frac{1}{4} = \frac{3}{5}$$

$$((\frac{3}{10} + \frac{1}{5} \div \frac{1}{2}) - \frac{1}{3}) \times \frac{1}{4} = \frac{11}{120}$$

$$(\frac{3}{10} + \frac{1}{5}) \div (\frac{1}{2} - \frac{1}{3}) \times \frac{1}{4} = \frac{3}{4}$$