

Master 3.27

Extra Practice 1

Lesson 3.1: Using Models to Multiply Fractions and Whole Numbers

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

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

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

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

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

a) $7 \times \frac{3}{5}$

b) $\frac{6}{10} \times 4$

c) $8 \times \frac{5}{4}$

d) $\frac{1}{10} \times 6$

3. Ella baby-sits for $\frac{3}{4}$ 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) $6 \times \frac{3}{4}$

b) $9 \times \frac{6}{12}$

c) $6 \times \frac{9}{12}$

d) $9 \times \frac{1}{2}$

5. Ian's monthly allowance is \$21. In January he starts saving for a

birthday gift in June. Each month he saves $\frac{2}{3}$ of his allowance.

The gift he wants to buy costs \$110. Will Ian have enough money? Explain.

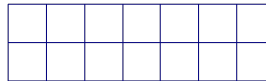
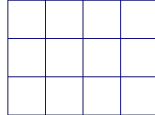
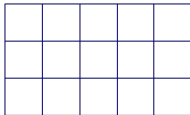
Name _____ Date _____

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Master 3.28
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 $\frac{3}{2}$ _____

Lesson 3.3: Multiplying Fractions

1. Multiply. Estimate to check.

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

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

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

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

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

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

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

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

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

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

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

4. The product of two fractions is
- $\frac{1}{2}$
- . One fraction is
- $\frac{1}{3}$
- .
-
- What is the other fraction?

5. Multiply. Simplify before multiplying if possible.

a) $\frac{1}{2} \times \frac{3}{4}$

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

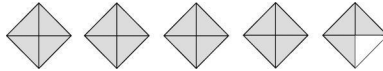
c) $\frac{3}{4} \times \frac{1}{2}$

d) $\frac{1}{2} \times \frac{3}{4}$

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) 3×1 3 or 8

b) 2×4 8 or 15

c) 2×3 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
- $\frac{1}{4}$
- 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?

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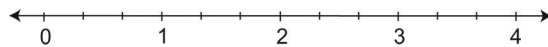
Extra Practice 5

Lesson 3.5: Dividing Whole Numbers and Fractions

1. Use a number line to find each quotient.

a) i) $4 \div \frac{1}{3}$

ii) $4 \div \frac{2}{3}$



b) i) $\frac{4}{5} \div 2$

ii) $\frac{4}{5} \div 4$



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

a) $2 \div \frac{1}{3}$

b) $3 \div \frac{3}{4}$

c) $4 \div \frac{2}{3}$

d) $5 \div \frac{1}{5}$

3. Use a number line to find each quotient.

a) $\frac{3}{4} \div 3$

b) $\frac{6}{5} \div 3$

c) $\frac{5}{8} \div 4$

d) $\frac{2}{3} \div 4$

4. Samuel uses $\frac{2}{3}$ 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 $\frac{3}{4} \times 4$ is the same as $4 \times \frac{3}{4}$.
The student assumes that $4 \div \frac{3}{4}$ is the same as $\frac{3}{4} \div 4$.
Is the student correct?
Use number lines to prove or disprove this assumption.

Lesson 3.6: Dividing Fractions

1. Write the reciprocal of each fraction.

a) $\frac{1}{3}$

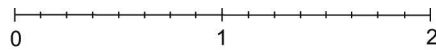
b) $\frac{8}{7}$

c) $\frac{9}{11}$

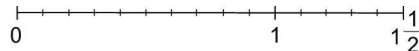
d) $\frac{17}{12}$

2. Use a copy of each number line to illustrate each quotient.

a) $\frac{10}{8} \div \frac{5}{8}$



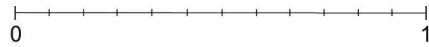
b) $\frac{12}{10} \div \frac{1}{5}$



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.

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) $1 \div$

b) $2 \div 1$

c) $4 \div 1$

d) $5 \div$

3. Use multiplication to find each quotient.

a) $3 \div 1$

b) $6 \div 2$

c) $5 \div 2$

d) $6 \div 7$

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

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) $2\frac{3}{4} \div 1$

f) $2\frac{3}{4} + \frac{3}{4}$

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 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. $\frac{1}{4}$ of the vegetarian pizza and $\frac{1}{4}$ of the ham and pineapple pizza were not eaten. How much pizza was left?

3. A dressmaker needs 3 m of fabric to sew one dress.
How many dresses can the dressmaker make with 28 m of fabric?

4. A dock is 7 m high. The portion of the dock above water one day was measured at 2 m high.
How much of the dock structure was above water that day?

Lesson 3.9: Order of Operations with Fractions

1. Evaluate.

a) $- \times (+)$

b) $- \times +$

c) $(-) \times (+)$

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

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

4. Evaluate. Show all steps.

a) $\times (+) -$

b) $-(+) \div 3$

c) $4 \div -3 +$

5. Add brackets to the expression $+ \div - \times$, to find as many different expressions and solutions, as you can.

$$+ \quad \div \quad - \quad \times$$

$$+ \quad \div \quad - \quad \times$$

$$+ \quad \div \quad - \quad \times$$

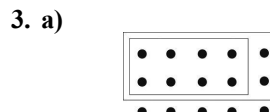
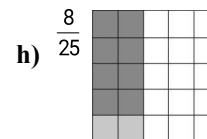
$$+ \quad \div \quad - \quad \times$$

$$+ \quad \div \quad - \quad \times$$

$$+ \quad \div \quad - \quad \times$$

Master 3.36a
Extra Practice Sample Answers
Extra Practice 1 – Master 3.27
Lesson 3.1

- $\times 5$ or $5 \times$
 - $\times 4$ or $4 \times$
 - $\times 8$ or $8 \times$
- $= 4$
 - $= 2 = 2$
 - $= 10$
 - $=$
- $h = 3 \ h$
 - $h = 15 \ h$
- All the answers are $= 4$ 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.
- In the six months from January to June, Ian will save of $\$21 = \14 .
 $\$14 \times 6 = \84
Ian needs $\$110 - \$84 = \$26$.



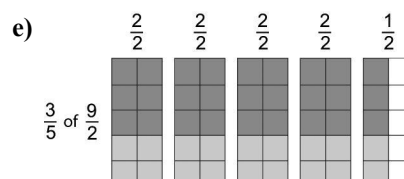
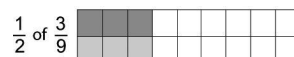
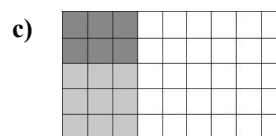
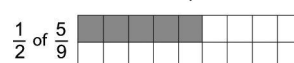
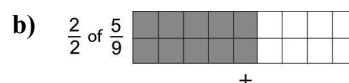
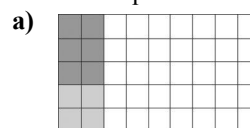
$$\frac{16}{30} = \frac{8}{15}$$

b)

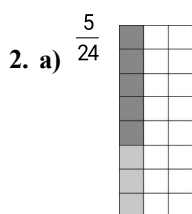
c) For example, 15 or 30 students

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

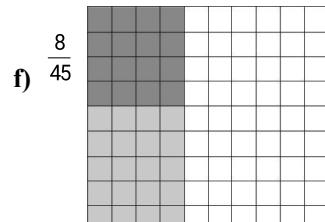
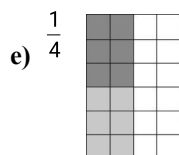
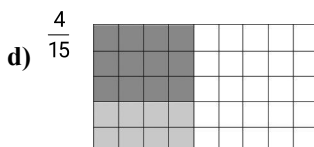
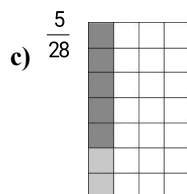
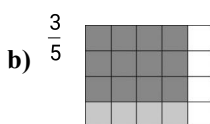
e and f both equal $\frac{27}{10}$


Extra Practice 2 – Master 3.28
Lesson 3.2

1. a) $\frac{2}{15}$ b) $\frac{1}{2}$

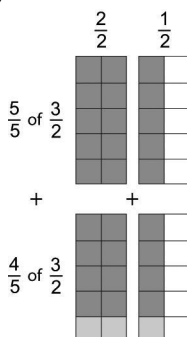


c) $\frac{5}{14}$



Master 3.36b
Extra Practice Sample Answers continued
Lesson 3.4

f)



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 – Master 3.31
Lesson 3.5
Extra Practice 3 – Master 3.29
Lesson 3.3

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.

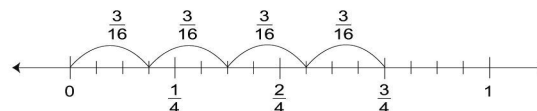
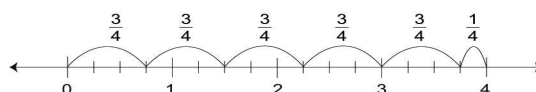
3. a) $\frac{7}{2}$ is $3\frac{1}{2}$ and $\frac{7}{8}$ is around 1, the product should be about $3\frac{1}{2}$.

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

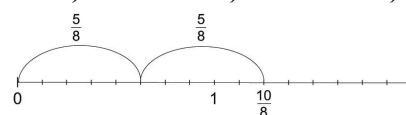
c) $\frac{32}{5}$ is close to 6 and $\frac{5}{3}$ is between 1 and 2, closer to 2, so the product should be about 12.

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

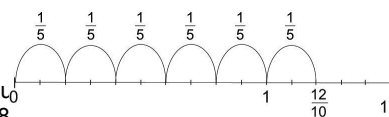
1. a) i) 12 ii) 6 b) i) $\frac{2}{5}$ ii) $\frac{1}{5}$
2. a) 6 b) 4 c) 6 d) 25
3. a) $\frac{1}{4}$ b) $\frac{2}{5}$ c) $\frac{5}{32}$ d) $\frac{1}{6}$
4. 18 balloons
5. No, $4 \div \frac{3}{4} = 5\frac{1}{3}$ and $\frac{3}{4} \div 4 = \frac{3}{16}$


Extra Practice 6 – Master 3.32
Lesson 3.6

1. a) $\frac{3}{1}$ b) $\frac{7}{8}$ c) $\frac{11}{9}$ d) $\frac{12}{17}$
2. a) 2

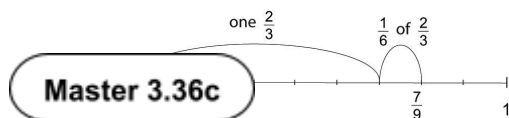

Extra Practice 4 – Master 3.30

b) 6



Name _____ Date _____

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



ce Sample Answers continued

Lesson 3.8

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

Extra Practice 9 – Master 3.35

Lesson 3.9

1. a) b) 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: $1 \div \times = 4$ and $1 \div (\times) = 9$, in the first expression division occurs before multiplication, the division results in 6 and of 4 is 6. In the second case, the multiplication is done first because of the brackets $\times =$ and $\div = 9$.

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

5. Possible solutions:

$+\div-\times=$

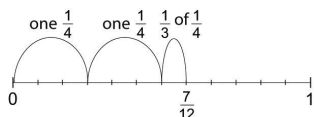
$(+)\div-\times=$

$+\div(-)\times=\frac{3}{5}$

$((+\div)-)\times=$

$(+)\div(-)\times=$

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



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

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

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

Extra Practice 7 – Master 3.33

Lesson 3.7

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 $\frac{1}{3}$.

Extra Practice 8 – Master 3.34

Name _____ Date _____