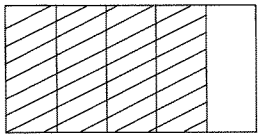
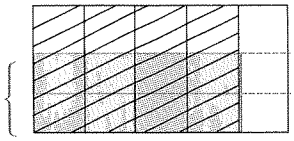
NAME _____

Lesson 1 Multiplication (using diagrams)



$\frac{4}{5}$

$\frac{2}{3}$ 

$\frac{4}{5}$

5 parts in all.

4 parts marked 

$\frac{4}{5}$ of the figure marked 

15 parts in all.

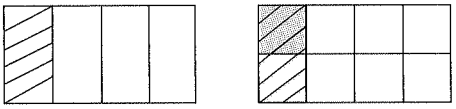
_____ parts marked 

_____ of the figure marked 

$\frac{2}{3}$ of $\frac{4}{5} = \frac{8}{15}$

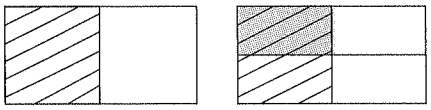
Complete the following.

1. *a* $\frac{1}{4}$ $\frac{1}{2}$ of $\frac{1}{4}$



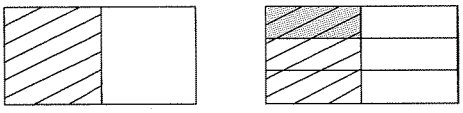
$\frac{1}{2}$ of $\frac{1}{4}$ = _____

b $\frac{1}{2}$ $\frac{1}{2}$ of $\frac{1}{2}$



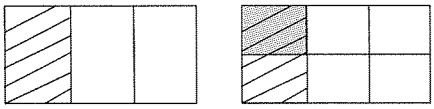
$\frac{1}{2}$ of $\frac{1}{2}$ = _____

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



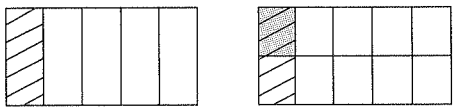
$\frac{1}{3}$ of $\frac{1}{2}$ = _____

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



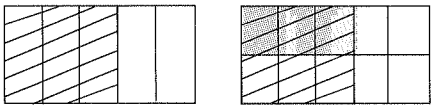
$\frac{1}{2}$ of $\frac{1}{3}$ = _____

3. $\frac{1}{5}$ $\frac{1}{2}$ of $\frac{1}{5}$



$\frac{1}{2}$ of $\frac{1}{5}$ = _____

$\frac{3}{5}$ $\frac{1}{2}$ of $\frac{3}{5}$

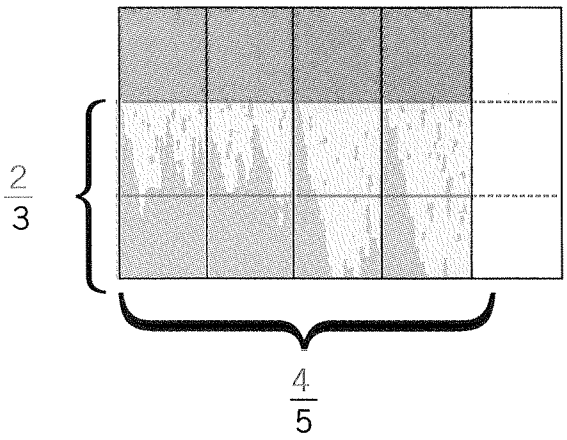


$\frac{1}{2}$ of $\frac{3}{5}$ = _____

CHAPTER 11

NAME _____

Lesson 2 Multiplication



$\frac{2}{3}$ of $\frac{4}{5}$ means $\frac{2}{3} \times \frac{4}{5}$

Multiply numerators.

$$\frac{2}{3} \times \frac{4}{5} = \frac{\overbrace{2 \times 4}}{\underbrace{3 \times 5}} = \frac{8}{15}$$

Multiply denominators.

Multiply as shown.

	a	*b*	*c*
1.	$\frac{1}{4} \times \frac{3}{5} = \frac{1 \times 3}{4 \times 5} = \frac{3}{20}$	$\frac{2}{3} \times \frac{1}{5}$	$\frac{1}{6} \times \frac{5}{8}$
2.	$\frac{3}{7} \times \frac{1}{4}$	$\frac{5}{9} \times \frac{1}{2}$	$\frac{6}{7} \times \frac{2}{5}$
3.	$\frac{4}{5} \times \frac{2}{3}$	$\frac{7}{8} \times \frac{1}{6}$	$\frac{1}{5} \times \frac{2}{3}$
4.	$\frac{2}{5} \times \frac{1}{7}$	$\frac{5}{6} \times \frac{1}{2}$	$\frac{2}{3} \times \frac{5}{7}$
5.	$\frac{2}{3} \times \frac{2}{5}$	$\frac{5}{8} \times \frac{3}{4}$	$\frac{2}{5} \times \frac{1}{3}$

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Lesson 3 Multiplication

$$\frac{4}{5}\times\frac{1}{2}=\frac{4\times1}{5\times2}$$ ← Multiply the numerators. → $$\frac{3}{10}\times\frac{5}{6}=\frac{3\times5}{10\times6}$$

Multiply the denominators.

$$=\frac{4}{10}$$ $$=\frac{15}{60}$$

$$=\frac{2}{5}$$ ← If necessary, change the answer to simplest form. → $$=\frac{1}{4}$$

Write each answer in simplest form.

	a	*b*	*c*
1.	$\frac{5}{7}\times\frac{1}{4}$	$\frac{3}{5}\times\frac{1}{2}$	$\frac{7}{8}\times\frac{3}{4}$
2.	$\frac{3}{7}\times\frac{2}{5}$	$\frac{1}{4}\times\frac{7}{8}$	$\frac{3}{5}\times\frac{4}{9}$
3.	$\frac{4}{7}\times\frac{3}{8}$	$\frac{9}{10}\times\frac{5}{6}$	$\frac{5}{9}\times\frac{6}{10}$
4.	$\frac{8}{15}\times\frac{5}{12}$	$\frac{5}{12}\times\frac{16}{25}$	$\frac{4}{9}\times\frac{9}{14}$
5.	$\frac{6}{7}\times\frac{2}{3}$	$\frac{7}{8}\times\frac{11}{12}$	$\frac{3}{10}\times\frac{7}{8}$

CHAPTER 11

Lesson 3 Problem Solving

Solve. Write each answer in simplest form.

1. Ontario has $\frac{1}{4}$ of Canada's fresh water. Manitoba has $\frac{1}{2}$ of the fresh water that Ontario does. How much of Canada's fresh water does Manitoba have?

Manitoba has _____ of Canada's fresh water.

1.

2. Virginia Falls in the Northwest Territories is $\frac{3}{4}$ the height of Bridal Veil Falls in British Columbia. Bridal Veil Falls is $\frac{2}{3}$ the height of Panther Falls in Alberta. What fraction of the height of Panther Falls is Virginia Falls?

Virginia Falls is _____ the height of Panther Falls.

2.

3. Marla bought a carton of milk. She drank $\frac{1}{2}$ of it. Her brother drank $\frac{1}{4}$ of what was left. How much milk did he drink?

He drank _____ carton.

3.

4. Hakeem brought $\frac{3}{4}$ round of cheese. He ate $\frac{1}{3}$ of it. How much cheese did he eat?

He ate _____ round.

4.

5. Five sixths of a room is now painted. Carlos did $\frac{2}{5}$ of the painting. How much of the room did he paint?

He painted _____ of the room.

5.

6. The lawn is $\frac{1}{2}$ mowed. Melinda did $\frac{2}{3}$ of the mowing. How much of the lawn did she mow?

She mowed _____ of the lawn.

6.

7. $\frac{5}{6}$ of a carton of eggs has been used. Eric used $\frac{1}{5}$ of those eggs. How much of a carton did Eric use?

Eric used _____ of a carton.

7.

NAME _____

Lesson 4 Multiplication (by whole numbers)

$$4 \times \frac{2}{5} = \frac{4}{1} \times \frac{2}{5}$$

Name the whole number as a fraction.

$$= \frac{4 \times 2}{1 \times 5}$$

Multiply the fractions.

$$= \frac{8}{5}$$

$$5\overline{)\,8} \quad 1\tfrac{3}{5}$$

$$= 1\frac{3}{5}$$

Change the answer to simplest form.

$$\frac{5}{8} \times 6 = \frac{5}{8} \times \frac{6}{1}$$

$$= \frac{5 \times 6}{8 \times 1}$$

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

$$8\overline{)\,30} \quad 3\tfrac{3}{4}$$

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

Write each answer in simplest form.

	a	*b*	*c*
1.	$5 \times \frac{3}{7}$	$9 \times \frac{7}{8}$	$7 \times \frac{5}{6}$
2.	$\frac{2}{3} \times 5$	$\frac{7}{8} \times 9$	$\frac{4}{5} \times 12$
3.	$8 \times \frac{3}{4}$	$9 \times \frac{5}{6}$	$4 \times \frac{4}{5}$
4.	$\frac{7}{8} \times 12$	$\frac{3}{5} \times 10$	$\frac{5}{6} \times 14$

CHAPTER 11

Lesson 4 Problem Solving

Solve. Write each answer in simplest form.

1. A boy has a mass of 270 newtons (N) on Earth. His mass would be only $\frac{1}{6}$ of that on the moon. What would be his mass on the moon?

His mass would be _____ N.

1.

2. A woman has a mass of 530 N on Earth. What would be her mass on the moon?

Her mass would be _____ N.

2.

3. A dog has a mass of 90 N on Earth. Its mass would be only $\frac{2}{5}$ of that on Mars. What would be the dog's mass on Mars?

It would have a mass of _____ N.

3.

4. What would be the mass of the boy in problem **1** on Mars?

His mass would be _____ N.

4.

5. What would be the mass of the woman in problem **2** on Mars?

Her mass would be _____ N.

5.

6. A rock has a mass of 40 N on Earth. Its mass would be only $\frac{7}{8}$ of that on Venus. What would be the rock's mass on Venus?

Its mass would be _____ N.

6.

7. What would be the mass of the dog in problem **3** on Venus?

Its mass would be _____ N.

7.

NAME _____

Lesson 5 Multiplication (mixed numerals)

$$2\frac{1}{6} \times 8 = \frac{13}{6} \times \frac{8}{1}$$

Change the mixed numeral to a fraction. Name the whole number as a fraction.

$$= \frac{13 \times 8}{6 \times 1}$$

Multiply.

$$= \frac{104}{6}$$

$$= 17\frac{1}{3}$$

Change the answer to simplest form.

Write each answer in simplest form.

	a	*b*	*c*
1.	$4\frac{1}{2} \times 5$	$1\frac{3}{4} \times 7$	$3 \times 2\frac{1}{8}$
2.	$2\frac{2}{3} \times 6$	$1\frac{7}{8} \times 6$	$4 \times 2\frac{3}{8}$
3.	$2\frac{4}{5} \times 7$	$10 \times 2\frac{4}{15}$	$8\frac{1}{7} \times 4$
4.	$8 \times 2\frac{5}{6}$	$3\frac{2}{7} \times 14$	$3\frac{1}{3} \times 7$

Lesson 5 Problem Solving

Solve. Write each answer in simplest form.

1. It takes $3\frac{1}{2}$ tiles to make a pattern. How many tiles are needed to make seven patterns?

_____ tiles are needed.

1.

2. Suppose that 10 patterns like those in problem **1** were made. How many tiles would be needed?

_____ tiles would be needed.

2.

3. Julia can paint $1\frac{3}{4}$ walls in 1 h. How many walls can she paint in 5 h?

She can paint _____ walls.

3.

4. Each ceiling takes Julia $1\frac{5}{8}$ h to paint. How long would it take her to paint 6 ceilings?

It would take her _____ h.

4.

5. Suppose it takes $2\frac{5}{6}$ h to make an orbit around the moon. How long would it take to make 9 orbits?

It would take _____ h.

5.

6. There are 12 boxes of nails in each carton. There are $2\frac{1}{2}$ cartons. How many boxes of nails are there?

There are _____ boxes of nails.

6.

7. In problem **6,** suppose there are only six boxes in a carton. How many boxes of nails are there in $2\frac{1}{2}$ of these cartons?

There are _____ boxes of nails.

7.

8. It takes a model train $5\frac{3}{8}$ min to travel a loop of track. How long would it take the train to travel 10 loops of the track?

It would take _____ min.

8.

NAME _____

Lesson 6 Multiplication (mixed numerals)

$$1\frac{1}{2} \times 2\frac{1}{4} = \frac{3}{2} \times \frac{9}{4}$$ Change both mixed numerals to improper fractions.

$$= \frac{3 \times 9}{2 \times 4}$$ Multiply.

$$= \frac{27}{8}$$

$$= 3\frac{3}{8}$$ Change to simplest form.

Write each answer in simplest form.

	a	*b*	*c*
1.	$3\frac{1}{8} \times 1\frac{2}{3}$	$1\frac{1}{6} \times 2\frac{1}{2}$	$1\frac{4}{5} \times 1\frac{3}{4}$
2.	$2\frac{2}{3} \times 4\frac{1}{5}$	$2\frac{1}{2} \times 1\frac{1}{7}$	$1\frac{3}{5} \times 1\frac{1}{6}$
3.	$1\frac{3}{5} \times 3\frac{3}{4}$	$2\frac{1}{4} \times 3\frac{1}{3}$	$4\frac{1}{2} \times 2\frac{2}{3}$
4.	$2\frac{2}{5} \times 2\frac{1}{4}$	$1\frac{3}{8} \times 1\frac{3}{7}$	$2\frac{4}{5} \times 2\frac{6}{7}$

CHAPTER 11

Lesson 6 Problem Solving

Solve. Write each answer in simplest form.

1. Neptune completes $1\frac{1}{2}$ turns about its axis in 1 Earth day. How many turns does it complete in $2\frac{1}{2}$ Earth days?

It completes _____ turns.

1.

2. How many turns does Neptune complete in $5\frac{3}{4}$ Earth days?

It completes _____ turns.

2.

3. Mars takes $1\frac{9}{10}$ Earth years to orbit the Sun. How many Earth years does Mars take to orbit the Sun $3\frac{1}{2}$ times?

It takes Mars _____ Earth years to orbit the Sun $3\frac{1}{2}$ times.

3.

4. The distance between Toronto and Halifax is $2\frac{1}{2}$ times the distance from Toronto to Montreal. How many times the distance from Toronto to Montreal would you travel on $3\frac{1}{2}$ trips from Toronto to Halifax?

You would travel _____ times the distance from Toronto to Montreal.

4.

5. A boat can make the trip across the lake in $2\frac{1}{2}$ h. How long would it take to make $7\frac{1}{4}$ trips?

It would take _____ h.

5.

6. If it took the boat in problem **5** $3\frac{1}{4}$ h to cross the lake, how long would it take to make $7\frac{1}{4}$ trips?

It would take _____ h.

6.

7. How long would it take the boat in problem **5** to make 10 trips?

It would take _____ h.

7.

NAME _____

Lesson 7 Multiplication Review

Write each answer in simplest form.

	a	*b*	*c*	*d*
1.	$\frac{3}{4} \times \frac{1}{5}$	$\frac{2}{7} \times \frac{3}{5}$	$\frac{2}{3} \times \frac{1}{5}$	$\frac{5}{12} \times \frac{7}{8}$
2.	$\frac{6}{7} \times \frac{1}{3}$	$\frac{4}{7} \times \frac{5}{6}$	$\frac{3}{8} \times \frac{2}{9}$	$\frac{3}{4} \times \frac{5}{12}$
3.	$6 \times \frac{2}{5}$	$\frac{2}{7} \times 4$	$8 \times \frac{3}{4}$	$\frac{3}{8} \times 6$
4.	$6\frac{2}{5} \times 5$	$6\frac{7}{8} \times 16$	$4 \times 5\frac{5}{6}$	$8 \times 2\frac{1}{12}$
5.	$3\frac{1}{8} \times 3\frac{1}{5}$	$4\frac{2}{3} \times 1\frac{4}{5}$	$2\frac{1}{2} \times 4\frac{2}{3}$	$1\frac{3}{5} \times 1\frac{1}{4}$

Lesson 7 Problem Solving

Solve. Write each answer in simplest form.

1. Zoe spent $\frac{2}{3}$ h doing homework. She spent $\frac{3}{4}$ of this time reading. How long did she spend reading?

She spent _____ h reading.

1.

2. A truck driver drives $8\frac{1}{2}$ h per day. How long will he drive in 10 days?

He will drive _____ h.

2.

3. In one hour a machine can produce $\frac{9}{10}$ of the silver required. Suppose the machine breaks down after $\frac{1}{3}$ h. How much of the silver required is processed?

_____ of the silver required is processed.

3.

4. Lola can type $\frac{3}{8}$ of a page per minute. How many pages can she type in 10 min?

She can type _____ pages in 10 min.

4.

5. There are 12 large boxes of Lotsa-clean detergent in a carton. There are $6\frac{3}{4}$ full cartons. How many boxes is this?

There are _____ boxes.

5.

6. There are $4\frac{1}{2}$ cartons of dog food. Each carton contains 3 bags? How many bags of dog food is this?

There are _____ bags of dog food.

6.

7. Chloe read 3 books in 2 weeks. Matt read $3\frac{1}{9}$ times as many books as Chloe. How many books did Matt read?

Matt read _____ books.

7.

NAME _____

CHAPTER 11 PRACTICE TEST
Multiplication of Fractions

Write each answer in simplest form.

	a	*b*	*c*
1.	$\frac{7}{8} \times \frac{5}{6}$	$\frac{4}{5} \times \frac{3}{7}$	$\frac{2}{3} \times \frac{1}{5}$
2.	$\frac{2}{3} \times \frac{5}{6}$	$\frac{8}{9} \times \frac{3}{8}$	$\frac{2}{5} \times \frac{15}{16}$
3.	$8 \times \frac{3}{5}$	$9 \times \frac{5}{6}$	$\frac{3}{4} \times 20$
4.	$2\frac{2}{5} \times 4$	$4\frac{1}{4} \times 6$	$3 \times 1\frac{2}{9}$
5.	$\frac{2}{3} \times 1\frac{4}{5}$	$7\frac{1}{2} \times \frac{4}{5}$	$6\frac{1}{4} \times \frac{2}{5}$
6.	$1\frac{3}{5} \times 1\frac{1}{3}$	$2\frac{1}{2} \times 3\frac{1}{3}$	$2\frac{1}{6} \times 1\frac{1}{8}$

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CHAPTER 12 PRETEST
Addition of Fractions

Write each answer in simplest form.

	a	*b*	*c*	*d*
1.	$\begin{array}{r} \frac{1}{6} \\ +\frac{1}{6} \\ \hline \end{array}$	$\begin{array}{r} \frac{3}{8} \\ +\frac{1}{8} \\ \hline \end{array}$	$\begin{array}{r} \frac{5}{9} \\ +\frac{2}{9} \\ \hline \end{array}$	$\begin{array}{r} \frac{7}{12} \\ +\frac{5}{12} \\ \hline \end{array}$
2.	$\begin{array}{r} \frac{5}{6} \\ +\frac{1}{3} \\ \hline \end{array}$	$\begin{array}{r} \frac{7}{8} \\ +\frac{1}{2} \\ \hline \end{array}$	$\begin{array}{r} \frac{7}{10} \\ +\frac{2}{5} \\ \hline \end{array}$	$\begin{array}{r} \frac{3}{5} \\ +\frac{1}{4} \\ \hline \end{array}$
3.	$\begin{array}{r} 7\frac{1}{2} \\ +3\frac{1}{4} \\ \hline \end{array}$	$\begin{array}{r} 6\frac{7}{10} \\ +1\frac{1}{5} \\ \hline \end{array}$	$\begin{array}{r} 5\frac{1}{3} \\ +\frac{3}{4} \\ \hline \end{array}$	$\begin{array}{r} 4\frac{1}{3} \\ +2\frac{1}{2} \\ \hline \end{array}$
4.	$\begin{array}{r} 1\frac{5}{8} \\ +4\frac{1}{6} \\ \hline \end{array}$	$\begin{array}{r} 5\frac{3}{4} \\ +\frac{1}{5} \\ \hline \end{array}$	$\begin{array}{r} \frac{7}{12} \\ +\frac{5}{6} \\ \hline \end{array}$	$\begin{array}{r} \frac{1}{12} \\ +6\frac{3}{4} \\ \hline \end{array}$
5.	$\begin{array}{r} \frac{2}{3} \\ +\frac{3}{4} \\ \hline \end{array}$	$\begin{array}{r} 9\frac{3}{8} \\ +\frac{1}{4} \\ \hline \end{array}$	$\begin{array}{r} 3\frac{4}{5} \\ +1\frac{3}{10} \\ \hline \end{array}$	$\begin{array}{r} 4\frac{2}{3} \\ +5\frac{5}{6} \\ \hline \end{array}$