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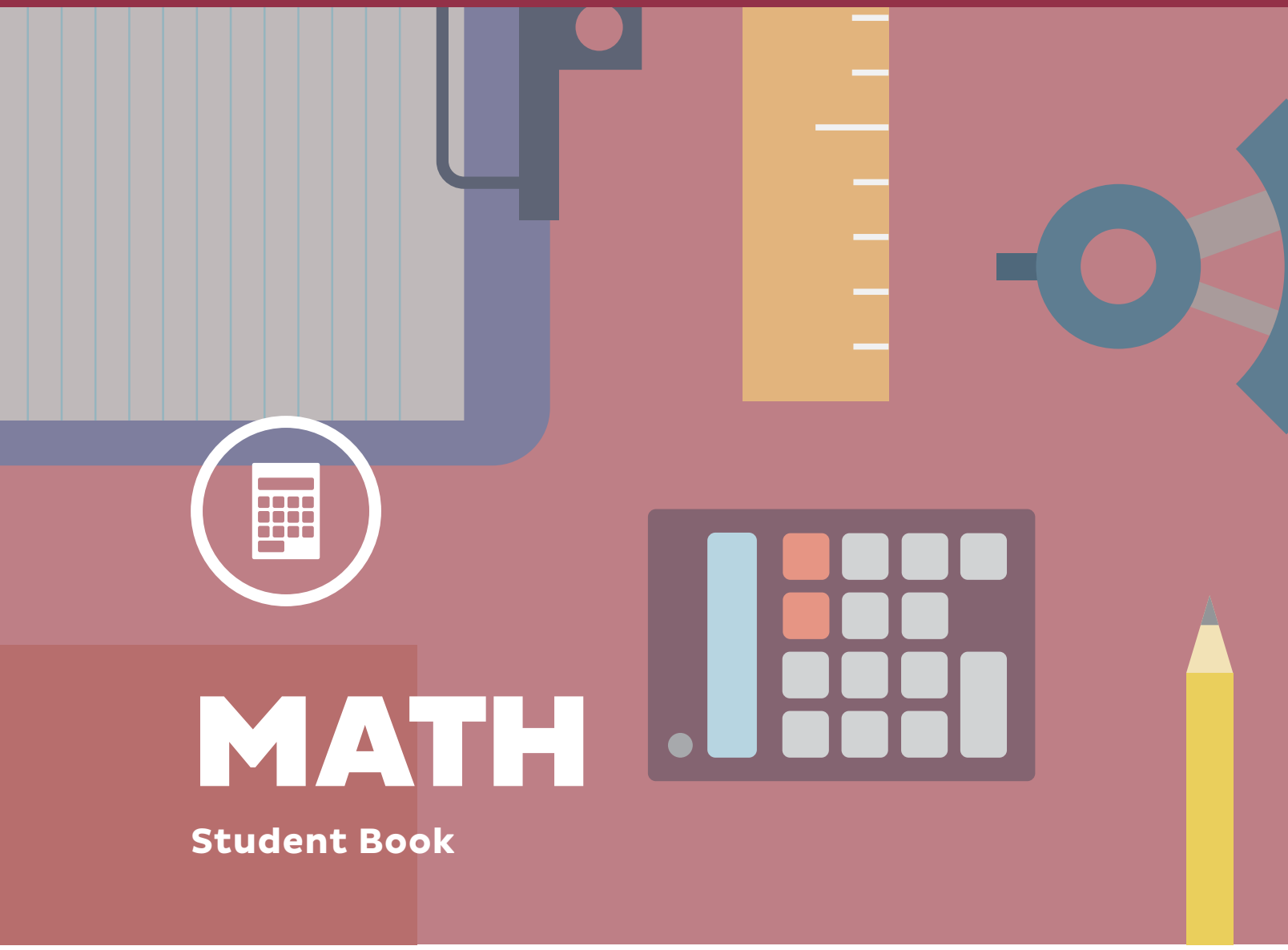


MATH

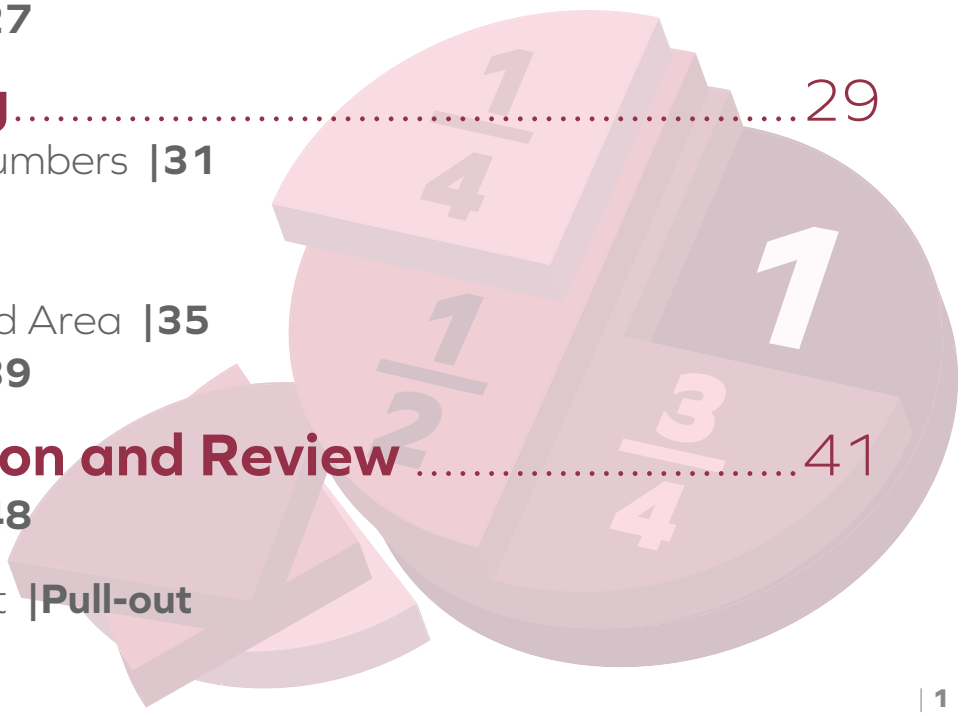
Student Book

4th Grade | Unit 7

Alpha Omega
PUBLICATIONS

MATH 407

MULTIPLICATION AND FRACTIONS



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Alpha Omega
PUBLICATIONS

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1. TWO-DIGIT MULTIPLIERS

Objectives

Read these objectives. When you have completed this section, you should be able to:

- Multiply to 10's by 2 digits.
- Simplify improper fractions.
- Read number sentences.

Complete these activities.

1.1 A **prime number** can be divided only by 1 and itself. Circle the prime numbers. Remember 1 is not a prime number.

5 8 12 13 18 23 25

1.2 A **composite number** can be divided by 1, itself, and other numbers. Circle the composite numbers. Remember 1 is not a composite number.

7 13 15 22 27 30 31

1.3 **Factors** are numbers that when multiplied together produce a given number. Write all of the factors of these numbers.

4 _____ 8 _____

10 _____ 16 _____

1.4 **Multiples** are the products of given factors. Write five multiples of each number.

2 _____ 5 _____

7 _____ 9 _____

1.5 Find the product of the given factors. An example, if needed, follows this activity.

Multiply from right to left. If the answer has two digits, write one digit and carry the other.

28	804	375	936
× 3	× 6	× 8	× 4

The multiplication problems in Activity 1.5 had one-digit multipliers.

We solve multiplication problems with two-digit multipliers by working two smaller problems. Then, we add the answers together.

```
  54
× 37
 378
1,620
1,998
```

```
  2
  54
× 7
 378

  1
  54
× 3
 162
```

1. Multiply 54 by 7 ones.
2. Put a 0 place holder in the ones' place below the 8.
3. Multiply 54 by 3 tens.
4. Total the products.

Complete these activities.

1.6 Follow the steps to solve these problems.

a.
$$\begin{array}{r} 78 \\ \times\ 63 \\ \hline \end{array}$$

1. Multiply 78 by 3 ones.
2. Put a 0 place holder in the ones' place below the _____ .
3. Multiply 78 by 6 tens.
4. Total the products.

b.
$$\begin{array}{r} 54 \\ \times\ 48 \\ \hline \end{array}$$

1. Multiply 54 by _____ ones.
2. Put a _____ place holder in the ones' place below the _____ .
3. Multiply 54 by _____ tens.
4. Total the products.

1.7 Multiply by a 2-digit number. Follow the steps.

a.

$$\begin{array}{r} 35 \\ \times\ 34 \\ \hline \end{array} \qquad \begin{array}{r} 62 \\ \times\ 26 \\ \hline \end{array} \qquad \begin{array}{r} 43 \\ \times\ 47 \\ \hline \end{array} \qquad \begin{array}{r} 25 \\ \times\ 65 \\ \hline \end{array}$$

b.

$$\begin{array}{r} 19 \\ \times\ 73 \\ \hline \end{array} \qquad \begin{array}{r} 27 \\ \times\ 44 \\ \hline \end{array} \qquad \begin{array}{r} 36 \\ \times\ 82 \\ \hline \end{array} \qquad \begin{array}{r} 42 \\ \times\ 78 \\ \hline \end{array}$$

1.8 Review the steps for division by a 1-digit number. Solve.

$$\begin{array}{r} 4 \text{ R } 1 \\ 8\overline{)33} \\ \underline{32} \\ 1 \end{array}$$

1. Divide (from left to right).
   Find a multiple of 8 smaller than 33.
2. Multiply.
3. Subtract.

a. $6\overline{)27}$ $8\overline{)52}$ $5\overline{)41}$

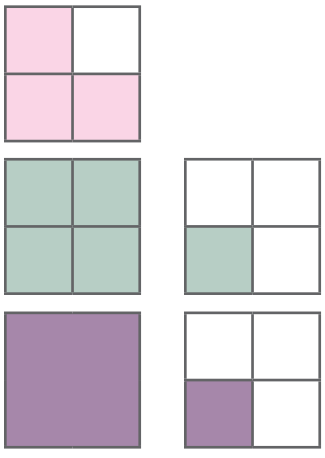
b. $9\overline{)83}$ $3\overline{)26}$ $7\overline{)39}$

Fractions

Proper fractions have smaller numerators than denominators.
They are smaller than a whole number. $\frac{3}{4} < 1$

Improper fractions have larger numerators than denominators.
They are larger than a whole number. $\frac{5}{4} > 1$

Mixed numbers are written with a whole number and a fraction.
They are larger than a whole number. $1\frac{1}{4} > 1$



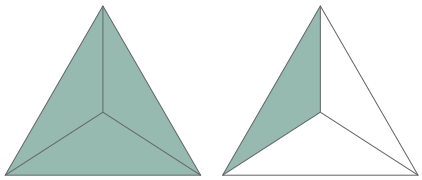
We can use the same illustrations to show ...

the improper fraction $\frac{5}{4}$ = the mixed number $1\frac{1}{4}$.

Complete this activity.

1.9 Write the shaded portion of each of the following as:
1) an improper fraction; and
2) as a whole number or mixed number.

a.

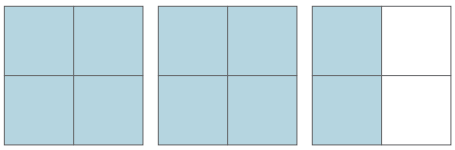


1) _____ 2) _____

b.

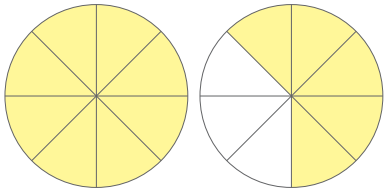
1) _____ 2) _____

c.



1) _____ 2) _____

d.



1) _____ 2) _____

To change an improper fraction to a whole number or mixed number, divide the denominator into the numerator. If there is a remainder, it is expressed as a fraction.

$$\frac{10}{5} = 5\overline{)10} = 2$$

$$\frac{11}{6} = 6\overline{)11}\ \begin{matrix}1\ \text{R}\,5\\ \\ \\ \end{matrix} = 1\frac{5}{6}$$

$$\begin{matrix}\\ \\ 6\\ \hline 5\end{matrix}$$

Complete these activities.

1.10 Use division to change these improper fractions to whole numbers or mixed numbers.

a. $\frac{5}{3} =$ $\frac{8}{3} =$

b. $\frac{12}{4} =$ $\frac{12}{9} =$

c. $\frac{3}{2} =$ $\frac{6}{5} =$

d. $\frac{16}{3} =$ $\frac{4}{2} =$

1.11 Find the missing factors in the multiplication charts.

a.

×	8		
4	32	36	8
	24	27	6
	48	54	12

b.

×		1	
	14	7	42
4	8	4	24
	16	8	48

Number Sentences

Complete these activities.

1.12 Complete the number sentences. Circle the correct sign.

a. $3+6+2$ $(>,<)$ $13-5$ $\quad$ 9×4 $(>,<)$ $42-8$

b. $50-10$ $(>,<)$ 7×5 $\quad$ 7×9 $(>,<)$ 8×8

c. $63\div9$ $(>,<)$ 2×4 $\quad$ $3+5-5+4$ $(>,<)$ $5+3$

1.13 An **equation** is a number sentence that contains an equal sign. The equal sign tells us that the numbers on both sides of the equation are equal to each other. Circle the number sentences that are equations.

a. $3+6$ $(=,\neq)$ $27\div3$ $\quad$ 6×8 $(=,\neq)$ 4×12

b. 38×0 $(=,\neq)$ 38×1 $\quad$ $46-6$ $(=,\neq)$ 5×8

c. $18-4$ $(=,\neq)$ $11+5$ $\quad$ $43+6$ $(=,\neq)$ $49-6$

1.14 Some equations contain missing numbers. The N represents the missing number in the problem. Write the missing number.

a. $N-8=9$ $\quad N=$_____ $\quad$ $N\times3=24$ $\quad N=$_____

b. $36\div6=N$ $\quad N=$_____ $\quad$ $N+5=9$ $\quad N=$_____

c. $28\div N=7$ $\quad N=$_____ $\quad$ $3\times N=12$ $\quad N=$_____

Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.

SELF TEST 1

Complete these activites (each answer, 1 point unless otherwise noted).

1.01 Circle the prime numbers.

6 11 18 23 25 31

1.02 Write the factors of ...

8 _____ 15 _____

1.03 Write five multiples of each number.

4 _____ 7 _____

1.04 Find the product.

a. $\begin{array}{r} 42 \\ \times\ 32 \\ \hline \end{array}$

b. $\begin{array}{r} 83 \\ \times\ 34 \\ \hline \end{array}$

c. $\begin{array}{r} 45 \\ \times\ 94 \\ \hline \end{array}$

d. $\begin{array}{r} 70 \\ \times\ 48 \\ \hline \end{array}$

1.05 Find the quotient.

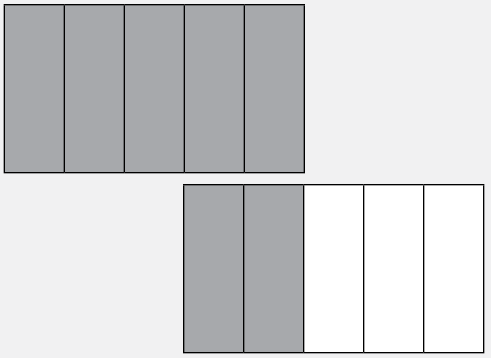
a. $7\overline{)46}$

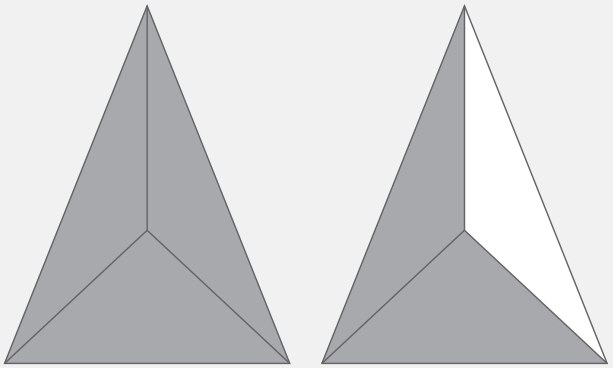
b. $5\overline{)49}$

c. $3\overline{)25}$

d. $8\overline{)34}$

1.06 Write the shaded portion of each of the following as:
1) an improper fraction; and
2) as a whole number or mixed number.





1) _____ 2) _____ 1) _____ 2) _____

1.07 Use division to change these improper fractions to whole numbers or mixed numbers.

a. $\frac{8}{5}$ = _____ b. $\frac{14}{7}$ = _____

1.08 Complete the number sentences. Circle the correct sign .

a. $2 + 5 + 8$ (> , <) 3×6 b. $18 - 3$ (> , <) $3 + 7 + 6$

c. $48 \div 6$ (= , ≠) 2×3 d. $75 - 3$ (= , ≠) 9×8

1.09 Solve for the missing number.

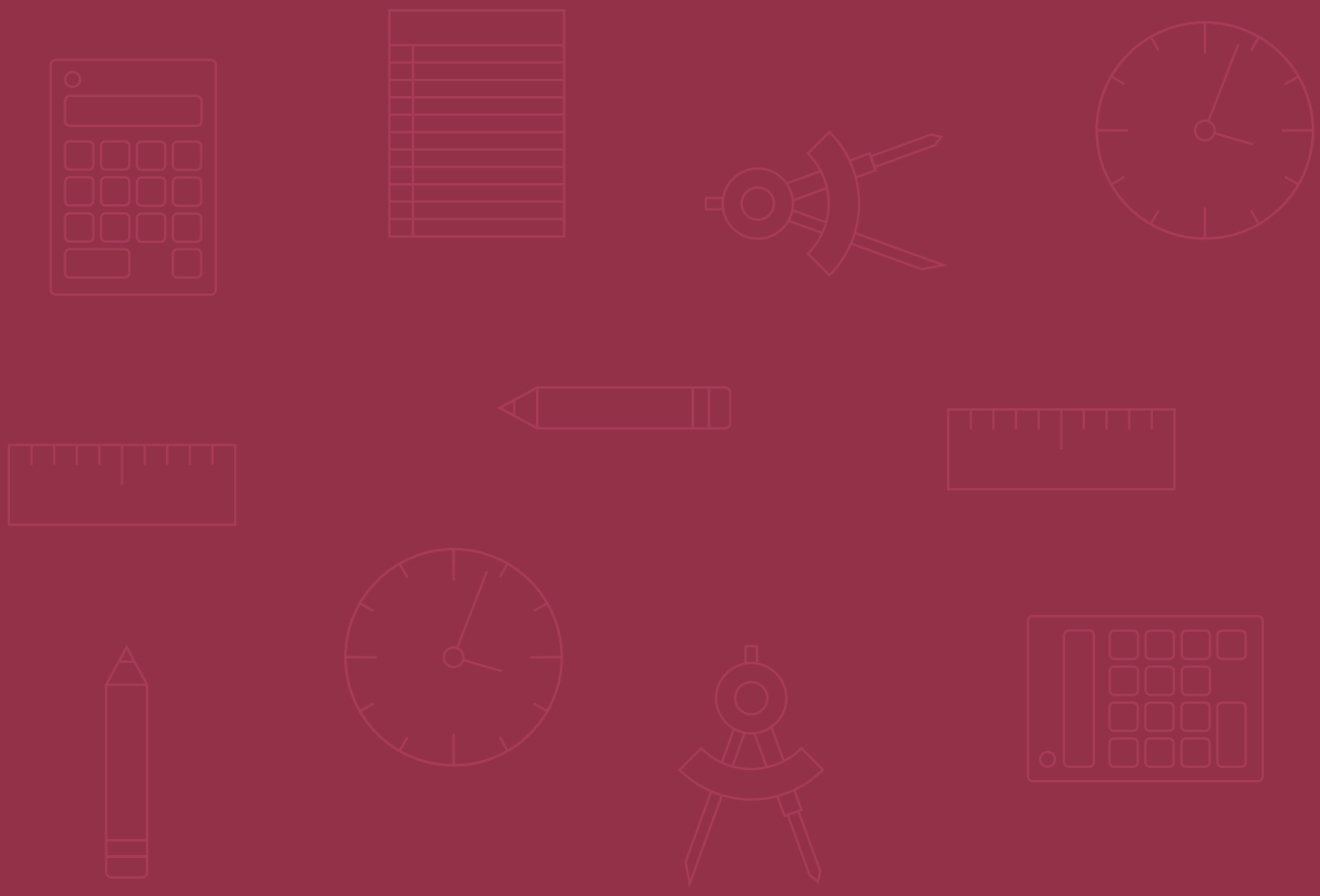
a. $N \div 3 = 9$ N = _____

b. $N - 6 = 7$ N = _____

Teacher check: Initials _____

Score _____ Date _____

20/25



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