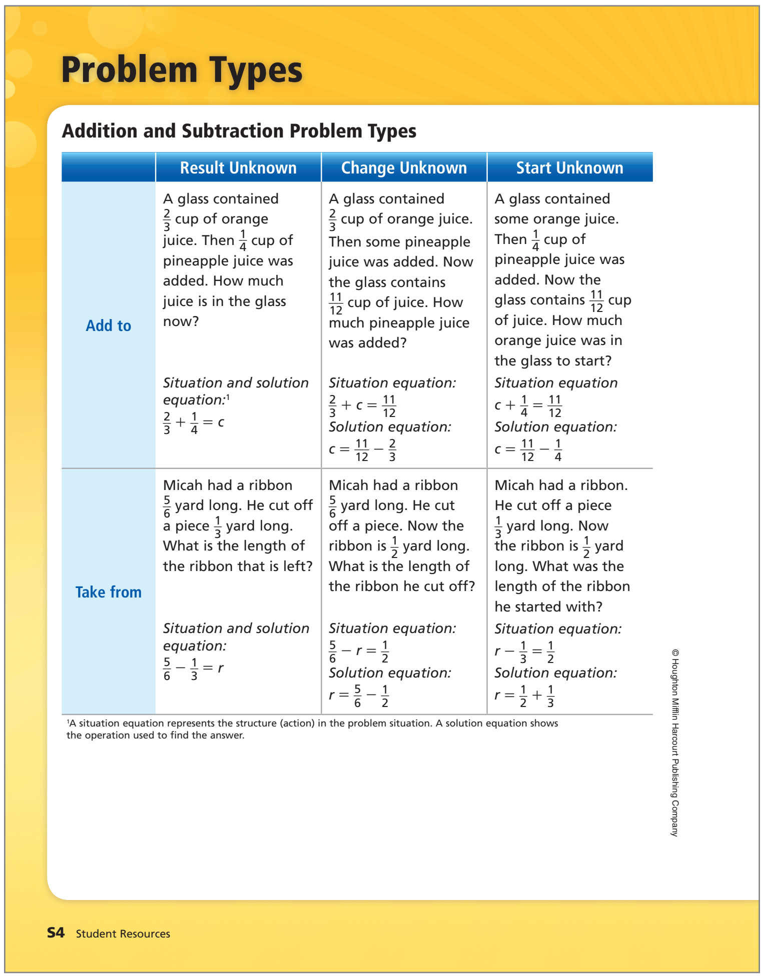


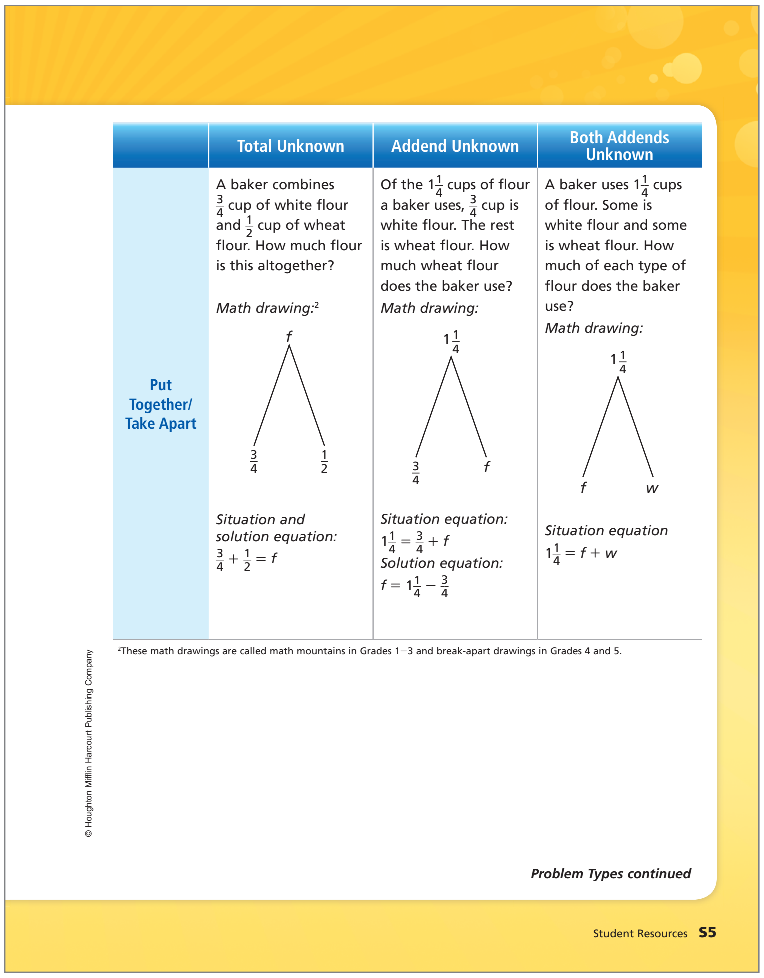
Problem Types

Addition and Subtraction Problem Types

	Result Unknown	Change Unknown	Start Unknown
Add to	A glass contained $\frac{2}{3}$ cup of orange juice. Then $\frac{1}{4}$ cup of pineapple juice was added. How much juice is in the glass now? *Situation and solution equation:*[1] $\frac{2}{3} + \frac{1}{4} = c$	A glass contained $\frac{2}{3}$ cup of orange juice. Then some pineapple juice was added. Now the glass contains $\frac{11}{12}$ cup of juice. How much pineapple juice was added? *Situation equation:* $\frac{2}{3} + c = \frac{11}{12}$ *Solution equation:* $c = \frac{11}{12} - \frac{2}{3}$	A glass contained some orange juice. Then $\frac{1}{4}$ cup of pineapple juice was added. Now the glass contains $\frac{11}{12}$ cup of juice. How much orange juice was in the glass to start? *Situation equation* $c + \frac{1}{4} = \frac{11}{12}$ *Solution equation:* $c = \frac{11}{12} - \frac{1}{4}$
Take from	Micah had a ribbon $\frac{5}{6}$ yard long. He cut off a piece $\frac{1}{3}$ yard long. What is the length of the ribbon that is left? *Situation and solution equation:* $\frac{5}{6} - \frac{1}{3} = r$	Micah had a ribbon $\frac{5}{6}$ yard long. He cut off a piece. Now the ribbon is $\frac{1}{2}$ yard long. What is the length of the ribbon he cut off? *Situation equation:* $\frac{5}{6} - r = \frac{1}{2}$ *Solution equation:* $r = \frac{5}{6} - \frac{1}{2}$	Micah had a ribbon. He cut off a piece $\frac{1}{3}$ yard long. Now the ribbon is $\frac{1}{2}$ yard long. What was the length of the ribbon he started with? *Situation equation:* $r - \frac{1}{3} = \frac{1}{2}$ *Solution equation:* $r = \frac{1}{2} + \frac{1}{3}$

---

[1] A situation equation represents the structure (action) in the problem situation. A solution equation shows the operation used to find the answer.

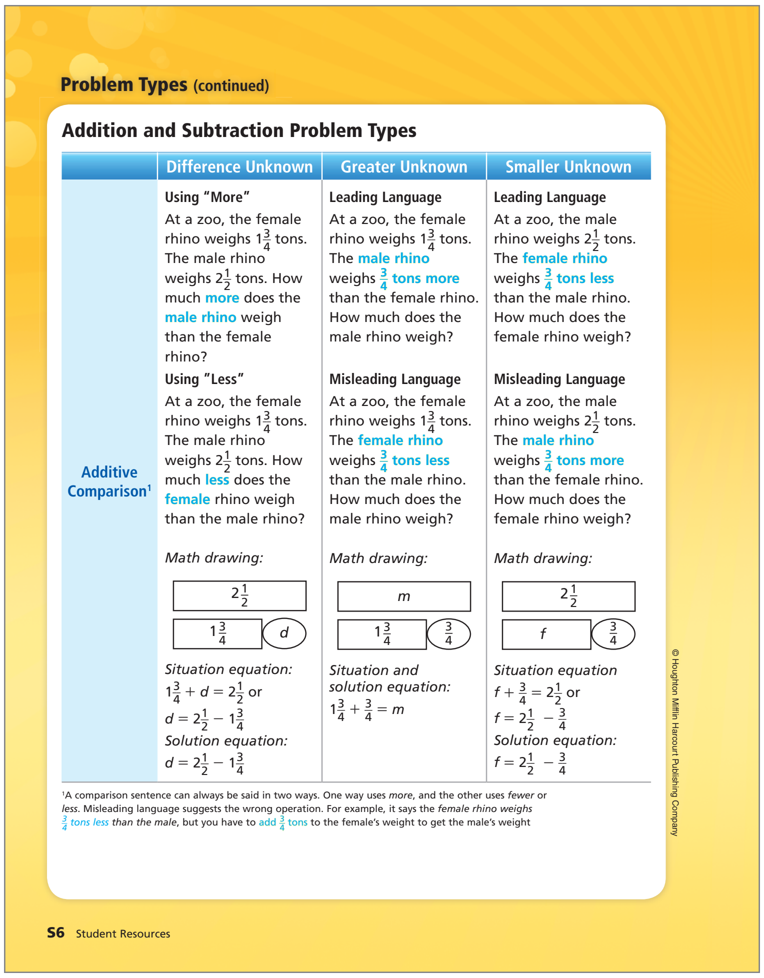


	Total Unknown	Addend Unknown	Both Addends Unknown
Put Together/ Take Apart	A baker combines $\frac{3}{4}$ cup of white flour and $\frac{1}{2}$ cup of wheat flour. How much flour is this altogether? *Math drawing:*[2] *Situation and solution equation:* $\frac{3}{4} + \frac{1}{2} = f$	Of the $1\frac{1}{4}$ cups of flour a baker uses, $\frac{3}{4}$ cup is white flour. The rest is wheat flour. How much wheat flour does the baker use? *Math drawing:* *Situation equation:* $1\frac{1}{4} = \frac{3}{4} + f$ *Solution equation:* $f = 1\frac{1}{4} - \frac{3}{4}$	A baker uses $1\frac{1}{4}$ cups of flour. Some is white flour and some is wheat flour. How much of each type of flour does the baker use? *Math drawing:* *Situation equation* $1\frac{1}{4} = f + w$

---

[2] These math drawings are called math mountains in Grades 1–3 and break-apart drawings in Grades 4 and 5.

Problem Types continued



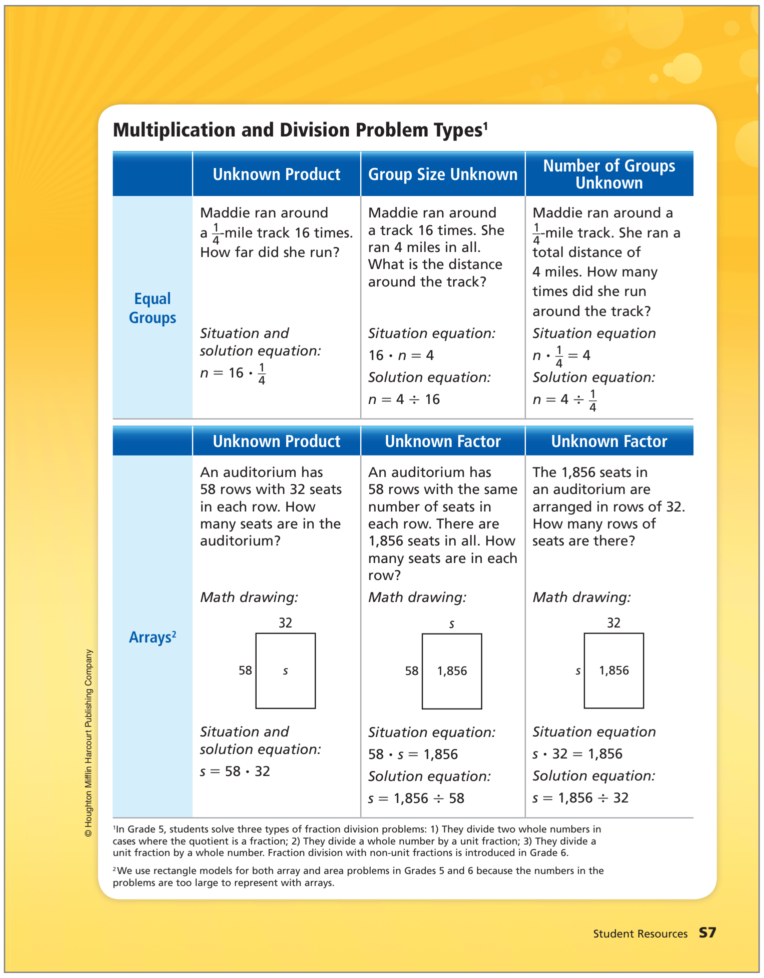
Problem Types (continued)

Addition and Subtraction Problem Types

	Difference Unknown	Greater Unknown	Smaller Unknown
Additive Comparison[1]	**Using "More"** At a zoo, the female rhino weighs $1\frac{3}{4}$ tons. The male rhino weighs $2\frac{1}{2}$ tons. How much **more** does the **male rhino** weigh than the female rhino? **Using "Less"** At a zoo, the female rhino weighs $1\frac{3}{4}$ tons. The male rhino weighs $2\frac{1}{2}$ tons. How much **less** does the **female** rhino weigh than the male rhino? *Math drawing:* *Situation equation:* $1\frac{3}{4} + d = 2\frac{1}{2}$ or $d = 2\frac{1}{2} - 1\frac{3}{4}$ *Solution equation:* $d = 2\frac{1}{2} - 1\frac{3}{4}$	**Leading Language** At a zoo, the female rhino weighs $1\frac{3}{4}$ tons. The **male rhino** weighs **$\frac{3}{4}$ tons more** than the female rhino. How much does the male rhino weigh? **Misleading Language** At a zoo, the female rhino weighs $1\frac{3}{4}$ tons. The **female rhino** weighs **$\frac{3}{4}$ tons less** than the male rhino. How much does the male rhino weigh? *Math drawing:* *Situation and solution equation:* $1\frac{3}{4} + \frac{3}{4} = m$	**Leading Language** At a zoo, the male rhino weighs $2\frac{1}{2}$ tons. The **female rhino** weighs **$\frac{3}{4}$ tons less** than the male rhino. How much does the female rhino weigh? **Misleading Language** At a zoo, the male rhino weighs $2\frac{1}{2}$ tons. The **male rhino** weighs **$\frac{3}{4}$ tons more** than the female rhino. How much does the female rhino weigh? *Math drawing:* *Situation equation* $f + \frac{3}{4} = 2\frac{1}{2}$ or $f = 2\frac{1}{2} - \frac{3}{4}$ *Solution equation:* $f = 2\frac{1}{2} - \frac{3}{4}$

---

[1] A comparison sentence can always be said in two ways. One way uses *more*, and the other uses *fewer* or *less*. Misleading language suggests the wrong operation. For example, it says the *female rhino weighs $\frac{3}{4}$ tons less than the male*, but you have to add $\frac{3}{4}$ tons to the female's weight to get the male's weight



Multiplication and Division Problem Types[1]

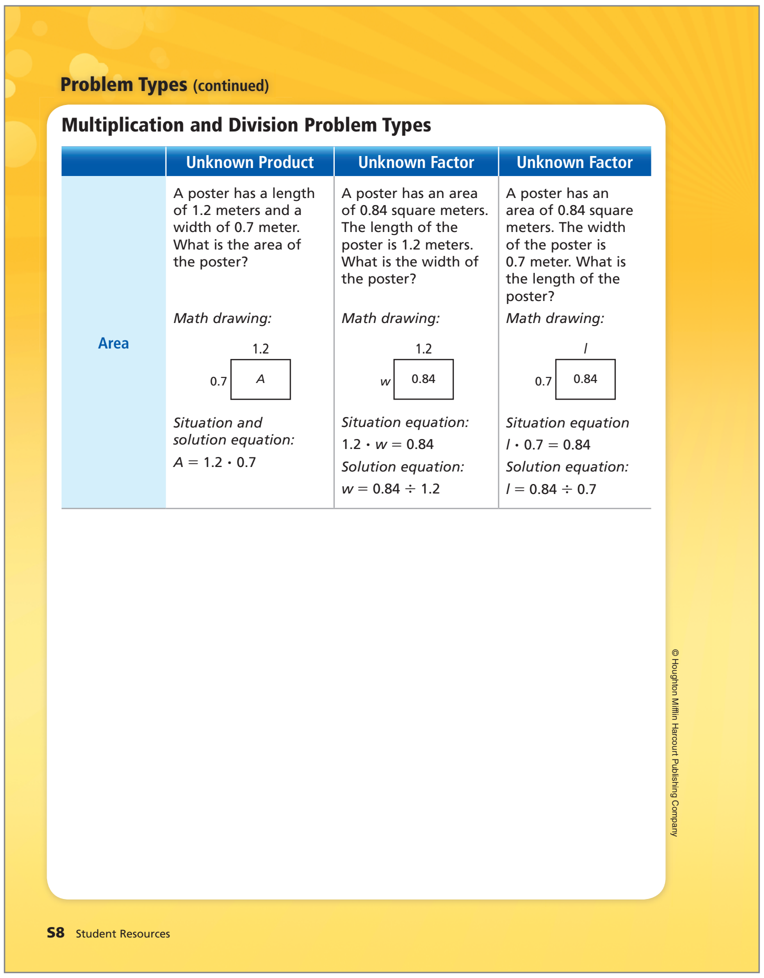
	Unknown Product	Group Size Unknown	Number of Groups Unknown
Equal Groups	Maddie ran around a $\frac{1}{4}$-mile track 16 times. How far did she run? *Situation and solution equation:* $n = 16 \cdot \frac{1}{4}$	Maddie ran around a track 16 times. She ran 4 miles in all. What is the distance around the track? *Situation equation:* $16 \cdot n = 4$ *Solution equation:* $n = 4 \div 16$	Maddie ran around a $\frac{1}{4}$-mile track. She ran a total distance of 4 miles. How many times did she run around the track? *Situation equation* $n \cdot \frac{1}{4} = 4$ *Solution equation:* $n = 4 \div \frac{1}{4}$

	Unknown Product	Unknown Factor	Unknown Factor
Arrays[2]	An auditorium has 58 rows with 32 seats in each row. How many seats are in the auditorium? *Math drawing:* *Situation and solution equation:* $s = 58 \cdot 32$	An auditorium has 58 rows with the same number of seats in each row. There are 1,856 seats in all. How many seats are in each row? *Math drawing:* *Situation equation:* $58 \cdot s = 1{,}856$ *Solution equation:* $s = 1{,}856 \div 58$	The 1,856 seats in an auditorium are arranged in rows of 32. How many rows of seats are there? *Math drawing:* *Situation equation* $s \cdot 32 = 1{,}856$ *Solution equation:* $s = 1{,}856 \div 32$

---

[1] In Grade 5, students solve three types of fraction division problems: 1) They divide two whole numbers in cases where the quotient is a fraction; 2) They divide a whole number by a unit fraction; 3) They divide a unit fraction by a whole number. Fraction division with non-unit fractions is introduced in Grade 6.

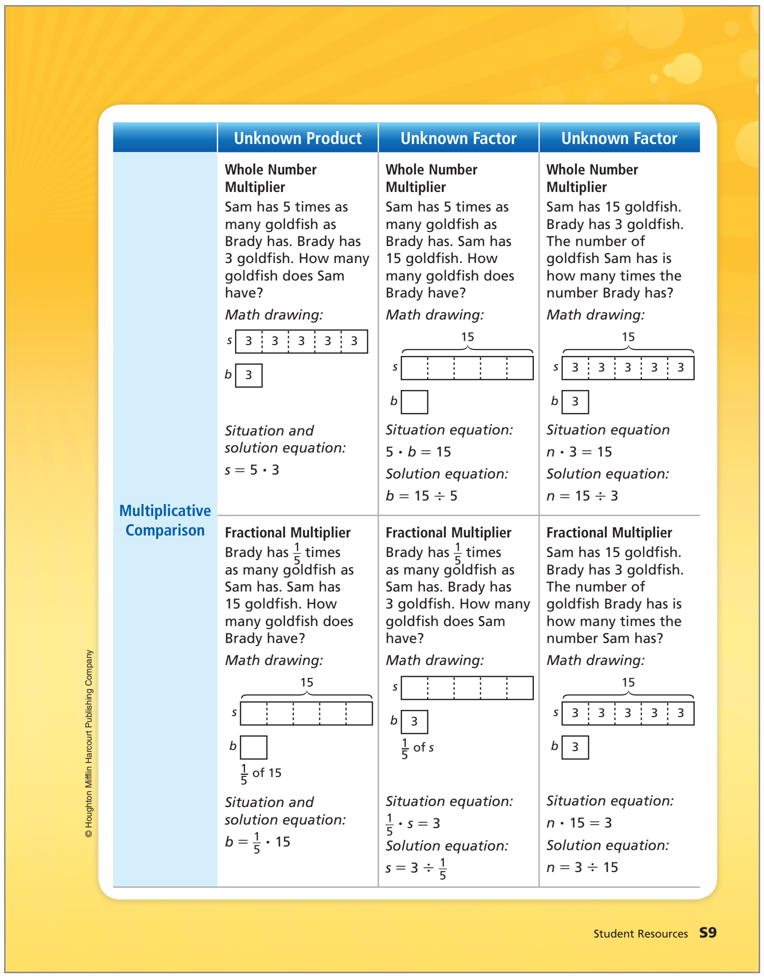
[2] We use rectangle models for both array and area problems in Grades 5 and 6 because the numbers in the problems are too large to represent with arrays.



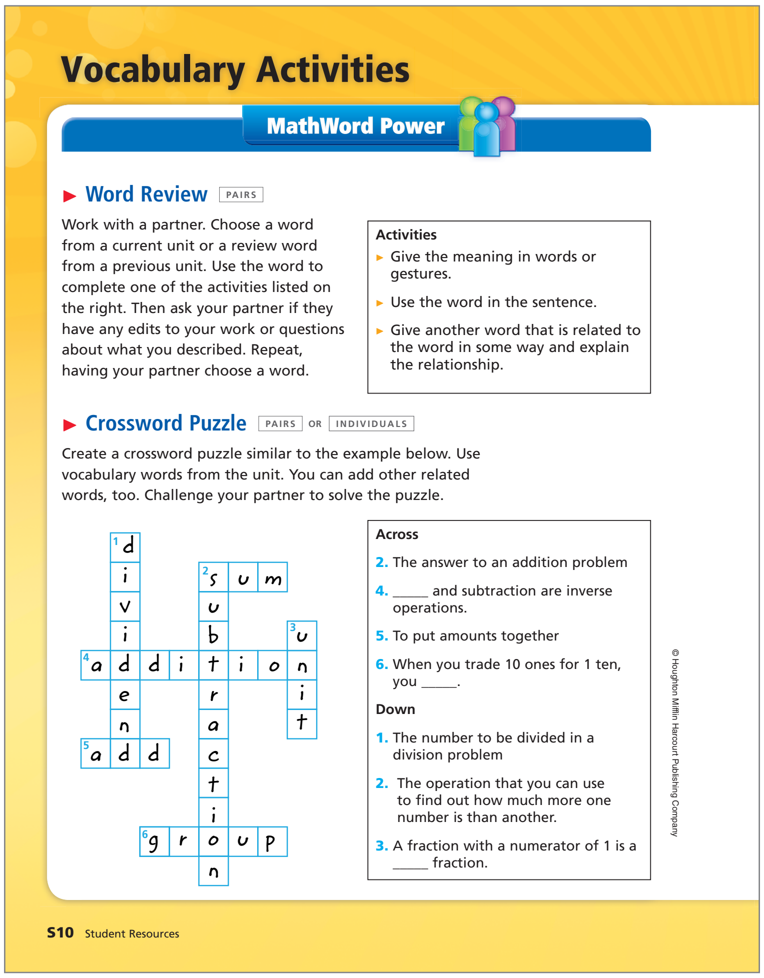
Problem Types (continued)

Multiplication and Division Problem Types

	Unknown Product	Unknown Factor	Unknown Factor
Area	A poster has a length of 1.2 meters and a width of 0.7 meter. What is the area of the poster? *Math drawing:* 1.2 0.7 A *Situation and solution equation:* $A = 1.2 \cdot 0.7$	A poster has an area of 0.84 square meters. The length of the poster is 1.2 meters. What is the width of the poster? *Math drawing:* 1.2 w 0.84 *Situation equation:* $1.2 \cdot w = 0.84$ *Solution equation:* $w = 0.84 \div 1.2$	A poster has an area of 0.84 square meters. The width of the poster is 0.7 meter. What is the length of the poster? *Math drawing:* l 0.7 0.84 *Situation equation* $l \cdot 0.7 = 0.84$ *Solution equation:* $l = 0.84 \div 0.7$



	Unknown Product	Unknown Factor	Unknown Factor
Multiplicative Comparison	**Whole Number Multiplier** Sam has 5 times as many goldfish as Brady has. Brady has 3 goldfish. How many goldfish does Sam have? *Math drawing:* s 3 3 3 3 3 b 3 *Situation and solution equation:* $s = 5 \cdot 3$	**Whole Number Multiplier** Sam has 5 times as many goldfish as Brady has. Sam has 15 goldfish. How many goldfish does Brady have? *Math drawing:* 15 s b *Situation equation:* $5 \cdot b = 15$ *Solution equation:* $b = 15 \div 5$	**Whole Number Multiplier** Sam has 15 goldfish. Brady has 3 goldfish. The number of goldfish Sam has is how many times the number Brady has? *Math drawing:* 15 s 3 3 3 3 3 b 3 *Situation equation* $n \cdot 3 = 15$ *Solution equation:* $n = 15 \div 3$
	Fractional Multiplier Brady has $\frac{1}{5}$ times as many goldfish as Sam has. Sam has 15 goldfish. How many goldfish does Brady have? *Math drawing:* 15 s b $\frac{1}{5}$ of 15 *Situation and solution equation:* $b = \frac{1}{5} \cdot 15$	**Fractional Multiplier** Brady has $\frac{1}{5}$ times as many goldfish as Sam has. Brady has 3 goldfish. How many goldfish does Sam have? *Math drawing:* s b 3 $\frac{1}{5}$ of s *Situation equation:* $\frac{1}{5} \cdot s = 3$ *Solution equation:* $s = 3 \div \frac{1}{5}$	**Fractional Multiplier** Sam has 15 goldfish. Brady has 3 goldfish. The number of goldfish Brady has is how many times the number Sam has? *Math drawing:* 15 s 3 3 3 3 3 b 3 *Situation equation:* $n \cdot 15 = 3$ *Solution equation:* $n = 3 \div 15$



Vocabulary Activities

MathWord Power

Word Review PAIRS

Work with a partner. Choose a word from a current unit or a review word from a previous unit. Use the word to complete one of the activities listed on the right. Then ask your partner if they have any edits to your work or questions about what you described. Repeat, having your partner choose a word.

Activities

- Give the meaning in words or gestures.
- Use the word in the sentence.
- Give another word that is related to the word in some way and explain the relationship.

Crossword Puzzle PAIRS OR INDIVIDUALS

Create a crossword puzzle similar to the example below. Use vocabulary words from the unit. You can add other related words, too. Challenge your partner to solve the puzzle.

	1 d						
	i			2 s	u	m	
	v			u			
	i			b			3 u
4 a	d	d	i	t	i	o	n
	e			r			i
	n			a			t
5 a	d	d		c			
				t			
				i			
		6 g	r	o	u	p	
				n			

Across

2. The answer to an addition problem

4. _____ and subtraction are inverse operations.

5. To put amounts together

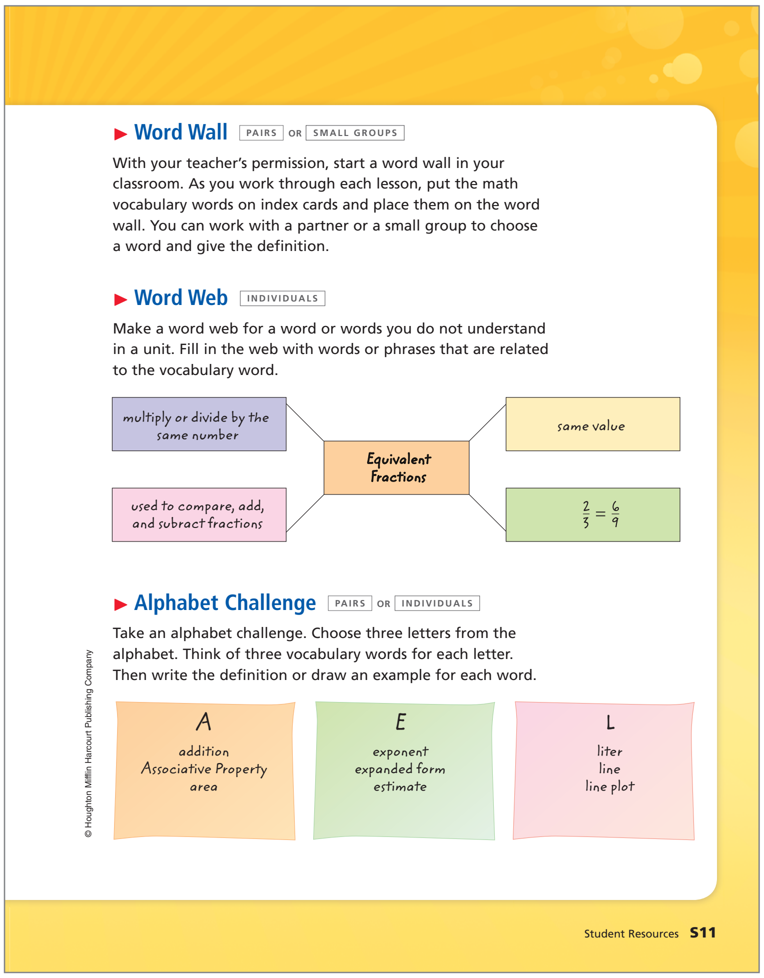
6. When you trade 10 ones for 1 ten, you _____.

Down

1. The number to be divided in a division problem

2. The operation that you can use to find out how much more one number is than another.

3. A fraction with a numerator of 1 is a _____ fraction.



Word Wall PAIRS OR SMALL GROUPS

With your teacher's permission, start a word wall in your classroom. As you work through each lesson, put the math vocabulary words on index cards and place them on the word wall. You can work with a partner or a small group to choose a word and give the definition.

Word Web INDIVIDUALS

Make a word web for a word or words you do not understand in a unit. Fill in the web with words or phrases that are related to the vocabulary word.

Equivalent Fractions

multiply or divide by the same number

used to compare, add, and subract fractions

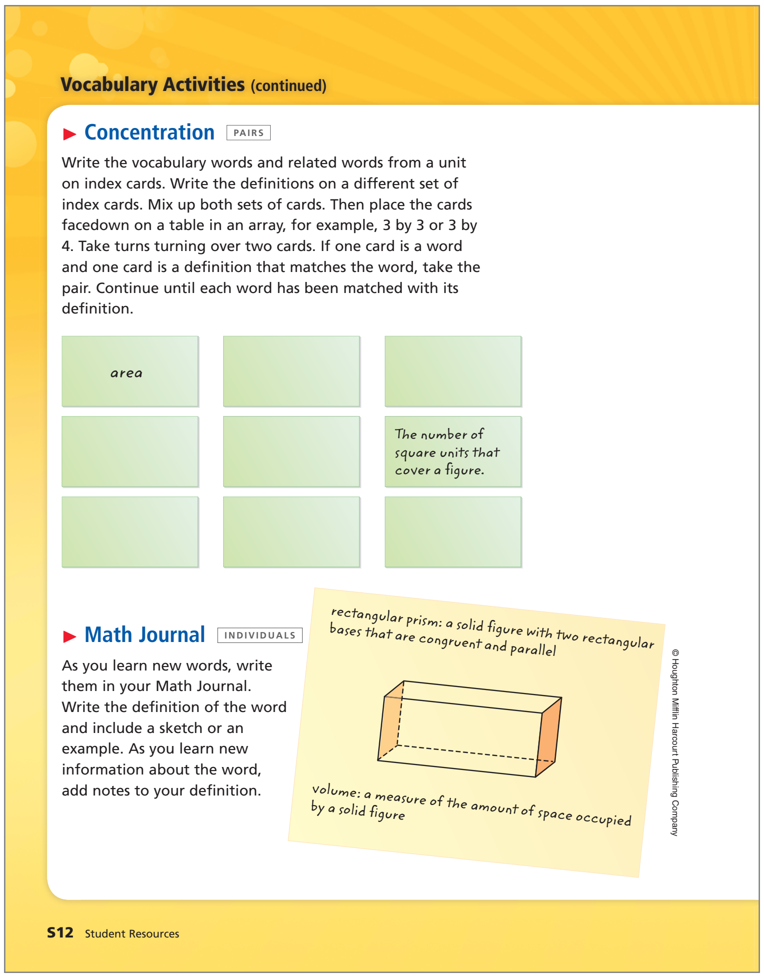
same value

$\frac{2}{3} = \frac{6}{9}$

Alphabet Challenge PAIRS OR INDIVIDUALS

Take an alphabet challenge. Choose three letters from the alphabet. Think of three vocabulary words for each letter. Then write the definition or draw an example for each word.

A	E	L
addition	exponent	liter
Associative Property	expanded form	line
area	estimate	line plot



Vocabulary Activities (continued)

Concentration PAIRS

Write the vocabulary words and related words from a unit on index cards. Write the definitions on a different set of index cards. Mix up both sets of cards. Then place the cards facedown on a table in an array, for example, 3 by 3 or 3 by 4. Take turns turning over two cards. If one card is a word and one card is a definition that matches the word, take the pair. Continue until each word has been matched with its definition.

area

The number of square units that cover a figure.

Math Journal INDIVIDUALS

As you learn new words, write them in your Math Journal. Write the definition of the word and include a sketch or an example. As you learn new information about the word, add notes to your definition.

rectangular prism: a solid figure with two rectangular bases that are congruent and parallel

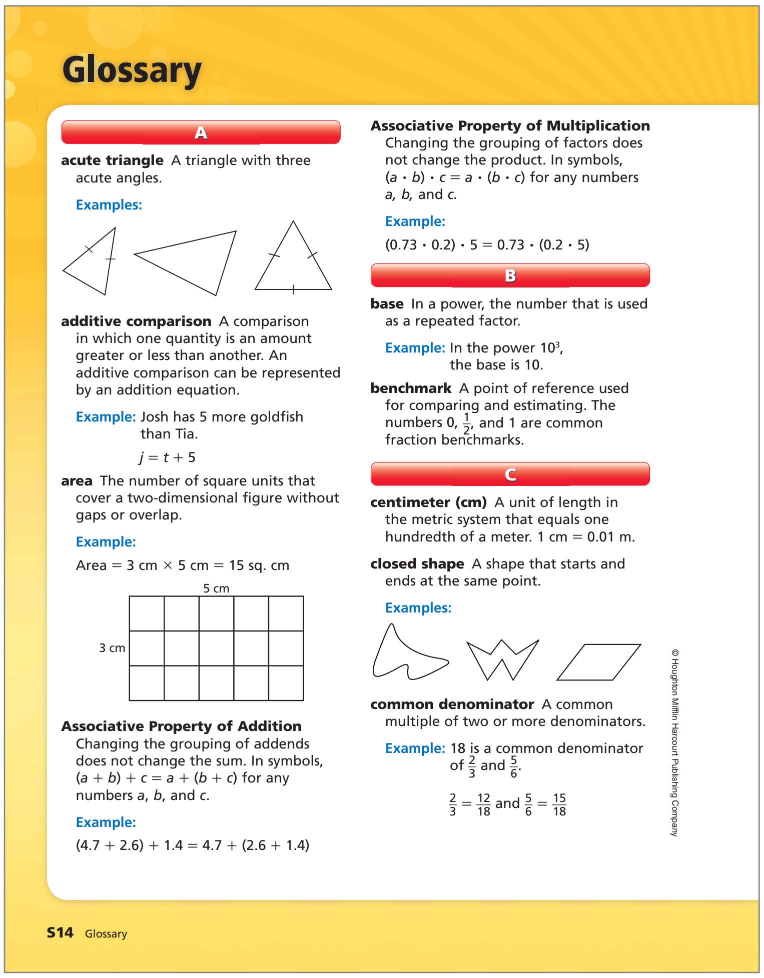
volume: a measure of the amount of space occupied by a solid figure

What's the Word? PAIRS

Work together to make a poster or bulletin board display of the words in a unit. Write definitions on a set of index cards. Mix up the cards. Work with a partner, choosing a definition from the index cards. Have your partner point to the word on the poster and name the matching math vocabulary word. Switch roles and try the activity again.

estimate
round
mixed number
equivalent fraction
common denominator
benchmark
simplify a fraction
unsimplify a fraction
unit fraction

a point of reference used for comparing and estimating



Glossary

A

acute triangle A triangle with three acute angles.

Examples:

additive comparison A comparison in which one quantity is an amount greater or less than another. An additive comparison can be represented by an addition equation.

Example: Josh has 5 more goldfish than Tia.

$j = t + 5$

area The number of square units that cover a two-dimensional figure without gaps or overlap.

Example:

Area = 3 cm × 5 cm = 15 sq. cm

Associative Property of Addition Changing the grouping of addends does not change the sum. In symbols, $(a + b) + c = a + (b + c)$ for any numbers a, b, and c.

Example:

$(4.7 + 2.6) + 1.4 = 4.7 + (2.6 + 1.4)$

Associative Property of Multiplication Changing the grouping of factors does not change the product. In symbols, $(a \cdot b) \cdot c = a \cdot (b \cdot c)$ for any numbers a, b, and c.

Example:

$(0.73 \cdot 0.2) \cdot 5 = 0.73 \cdot (0.2 \cdot 5)$

B

base In a power, the number that is used as a repeated factor.

Example: In the power 10^3, the base is 10.

benchmark A point of reference used for comparing and estimating. The numbers 0, $\frac{1}{2}$, and 1 are common fraction benchmarks.

C

centimeter (cm) A unit of length in the metric system that equals one hundredth of a meter. 1 cm = 0.01 m.

closed shape A shape that starts and ends at the same point.

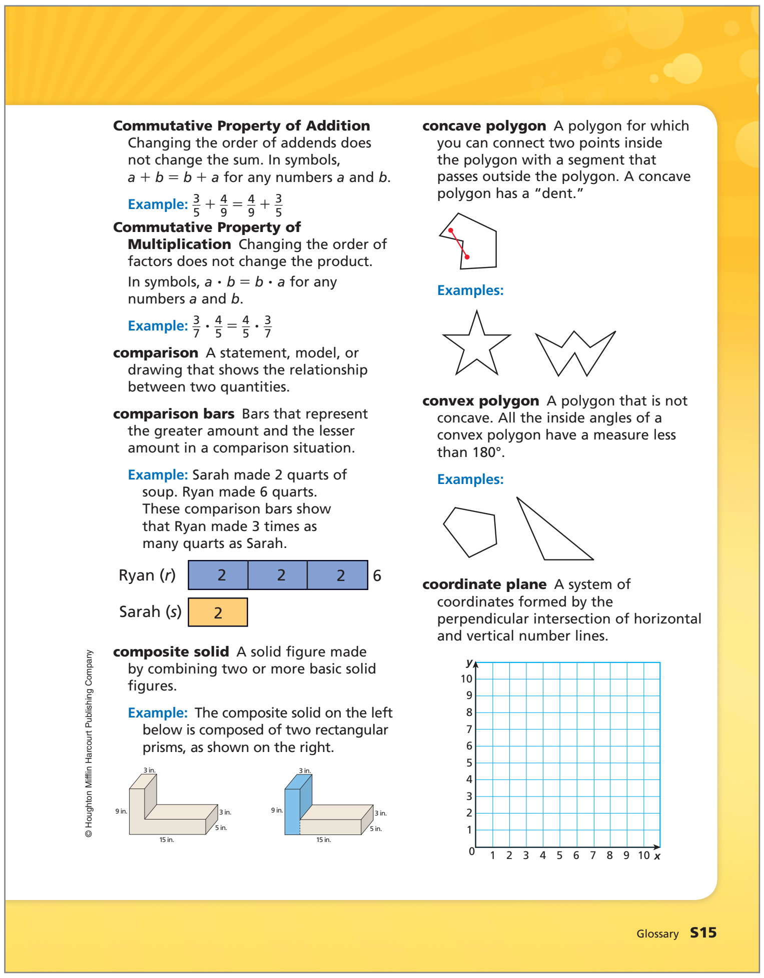
Examples:

common denominator A common multiple of two or more denominators.

Example: 18 is a common denominator of $\frac{2}{3}$ and $\frac{5}{6}$.

$\frac{2}{3} = \frac{12}{18}$ and $\frac{5}{6} = \frac{15}{18}$

S14 Glossary



Commutative Property of Addition Changing the order of addends does not change the sum. In symbols, $a + b = b + a$ for any numbers a and b.

Example: $\frac{3}{5} + \frac{4}{9} = \frac{4}{9} + \frac{3}{5}$

Commutative Property of Multiplication Changing the order of factors does not change the product. In symbols, $a \cdot b = b \cdot a$ for any numbers a and b.

Example: $\frac{3}{7} \cdot \frac{4}{5} = \frac{4}{5} \cdot \frac{3}{7}$

comparison A statement, model, or drawing that shows the relationship between two quantities.

comparison bars Bars that represent the greater amount and the lesser amount in a comparison situation.

Example: Sarah made 2 quarts of soup. Ryan made 6 quarts. These comparison bars show that Ryan made 3 times as many quarts as Sarah.

Ryan (r)	2	2	2	6
Sarah (s)	2			

composite solid A solid figure made by combining two or more basic solid figures.

Example: The composite solid on the left below is composed of two rectangular prisms, as shown on the right.

concave polygon A polygon for which you can connect two points inside the polygon with a segment that passes outside the polygon. A concave polygon has a "dent."

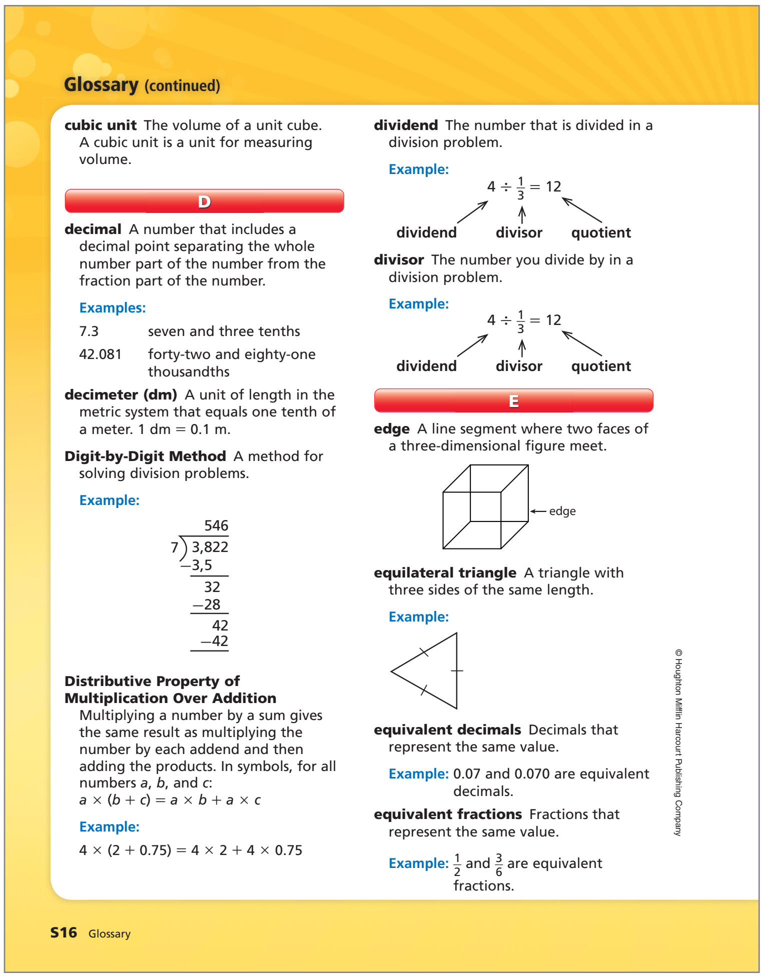
Examples:

convex polygon A polygon that is not concave. All the inside angles of a convex polygon have a measure less than 180°.

Examples:

coordinate plane A system of coordinates formed by the perpendicular intersection of horizontal and vertical number lines.

Glossary S15



Glossary (continued)

cubic unit The volume of a unit cube. A cubic unit is a unit for measuring volume.

D

decimal A number that includes a decimal point separating the whole number part of the number from the fraction part of the number.

Examples:

7.3	seven and three tenths
42.081	forty-two and eighty-one thousandths

decimeter (dm) A unit of length in the metric system that equals one tenth of a meter. 1 dm = 0.1 m.

Digit-by-Digit Method A method for solving division problems.

Example:

$$\begin{array}{r} 546 \\ 7\overline{)\,3{,}822} \\ -3{,}5 \\ \hline 32 \\ -28 \\ \hline 42 \\ -42 \\ \hline \end{array}$$

Distributive Property of Multiplication Over Addition Multiplying a number by a sum gives the same result as multiplying the number by each addend and then adding the products. In symbols, for all numbers a, b, and c:
$a \times (b + c) = a \times b + a \times c$

Example:

$4 \times (2 + 0.75) = 4 \times 2 + 4 \times 0.75$

dividend The number that is divided in a division problem.

Example:

$4 \div \frac{1}{3} = 12$

dividend divisor quotient

divisor The number you divide by in a division problem.

Example:

$4 \div \frac{1}{3} = 12$

dividend divisor quotient

E

edge A line segment where two faces of a three-dimensional figure meet.

equilateral triangle A triangle with three sides of the same length.

Example:

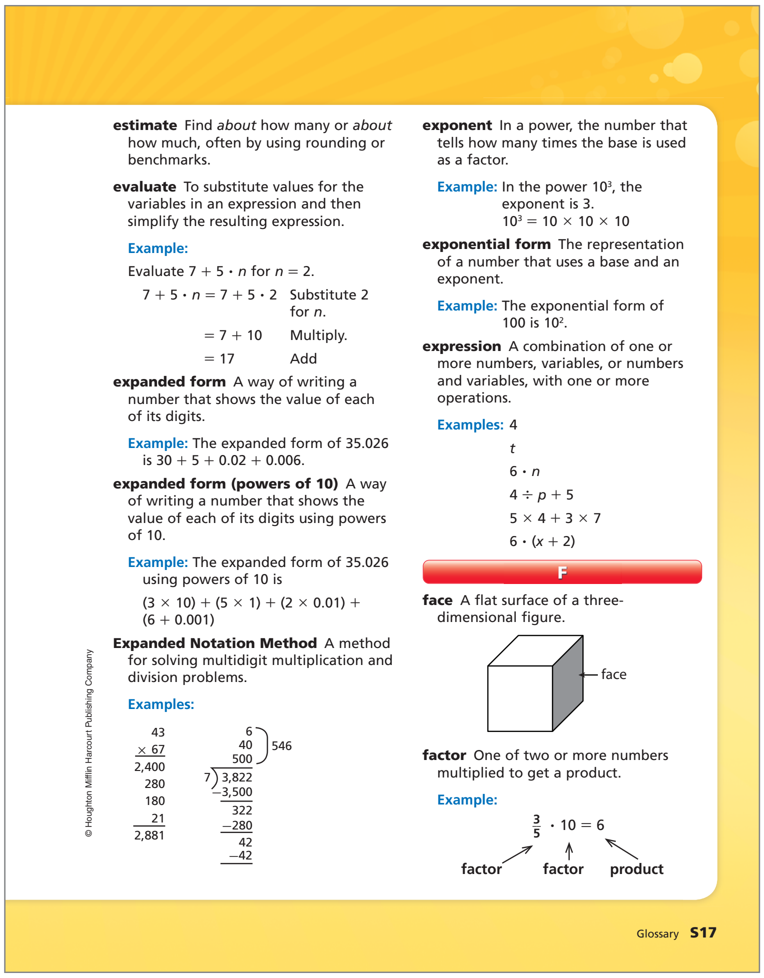
equivalent decimals Decimals that represent the same value.

Example: 0.07 and 0.070 are equivalent decimals.

equivalent fractions Fractions that represent the same value.

Example: $\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions.

S16 Glossary



estimate Find *about* how many or *about* how much, often by using rounding or benchmarks.

evaluate To substitute values for the variables in an expression and then simplify the resulting expression.

Example:

Evaluate $7 + 5 \cdot n$ for $n = 2$.

$7 + 5 \cdot n = 7 + 5 \cdot 2$ Substitute 2 for n.

$= 7 + 10$ Multiply.

$= 17$ Add

expanded form A way of writing a number that shows the value of each of its digits.

Example: The expanded form of 35.026 is 30 + 5 + 0.02 + 0.006.

expanded form (powers of 10) A way of writing a number that shows the value of each of its digits using powers of 10.

Example: The expanded form of 35.026 using powers of 10 is

$(3 \times 10) + (5 \times 1) + (2 \times 0.01) + (6 + 0.001)$

Expanded Notation Method A method for solving multidigit multiplication and division problems.

Examples:

$$\begin{array}{r} 43 \\ \times\ 67 \\ \hline 2{,}400 \\ 280 \\ 180 \\ 21 \\ \hline 2{,}881 \end{array} \qquad \begin{array}{r} 6 \\ 40 \\ 500 \\ 7\overline{)\,3{,}822} \\ -3{,}500 \\ \hline 322 \\ -280 \\ \hline 42 \\ -42 \\ \hline \end{array} \left.\vphantom{\begin{array}{r}6\\40\\500\end{array}}\right\} 546$$

exponent In a power, the number that tells how many times the base is used as a factor.

Example: In the power 10^3, the exponent is 3.
$10^3 = 10 \times 10 \times 10$

exponential form The representation of a number that uses a base and an exponent.

Example: The exponential form of 100 is 10^2.

expression A combination of one or more numbers, variables, or numbers and variables, with one or more operations.

Examples: 4

t

$6 \cdot n$

$4 \div p + 5$

$5 \times 4 + 3 \times 7$

$6 \cdot (x + 2)$

F

face A flat surface of a three-dimensional figure.

factor One of two or more numbers multiplied to get a product.

Example:

$\frac{3}{5} \cdot 10 = 6$

factor factor product

Glossary S17

Glossary (continued)

frequency table A table that shows how many times each outcome, item, or category occurs.

Example:

Outcome	Number of Students
1	6
2	3
3	5
4	4
5	2
6	5

G

greater than (>) A symbol used to show how two numbers compare. The greater number goes before the > symbol and the lesser number goes after.

Example: $\frac{2}{3} > \frac{1}{2}$ Two thirds is greater than one half.

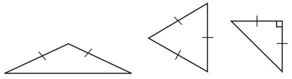
H

hundredth A unit fraction representing one of one hundred equal parts of a whole, written as 0.01 or $\frac{1}{100}$.

I

isosceles triangle A triangle with at least two sides of the same length.

Examples:

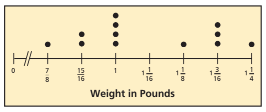


L

less than (<) A symbol used to show how two numbers compare. The lesser number goes before the < symbol and the greater number goes after.

Example: $\frac{1}{4} < \frac{1}{3}$ One fourth is less than one third.

line plot A diagram that uses a number line to show the frequency of data.



M

meter The basic unit of length in the metric system.

mile (mi) A customary unit of length equal to 5,280 feet or 1,760 yards.

millimeter (mm) A unit of length in the metric system that equals one thousandth of a meter.
1 mm = 0.001 m.

mixed number A number with a whole number part and a fraction part.

Example: The mixed number $3\frac{2}{5}$ means $3 + \frac{2}{5}$.

multiplier The number the numerator and denominator of a fraction are multiplied by to get an equivalent fraction.

Example: A multiplier of 5 changes $\frac{2}{3}$ to $\frac{10}{15}$.

multiplicative comparison A comparison in which one quantity is a number of times the size of another. A multiplicative comparison can be represented by a multiplication equation or a division equation.

Example: Tomás picked 3 times as many apples as Catie.

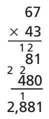
$t = 3 \cdot c$

$t \div 3 = c$ or $\frac{1}{3} \cdot t = c$

N

New Groups Below Method A method used to solve multidigit multiplication problems.

Example:



numerical pattern A sequence of numbers that share a relationship.

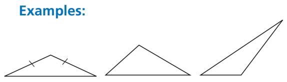
Example: In this numerical pattern, each term is 3 more than the term before.

2, 5, 8, 11, 14, . . .

O

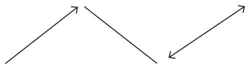
obtuse triangle A triangle with an obtuse angle.

Examples:



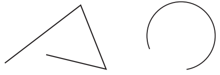
one-dimensional figure A figure with only one dimension, usually length.

Examples:



open shape A shape that does not start and end at the same point.

Examples:



Order of Operations A rule that states the order in which the operations in an expression should be done:

Step 1 Perform operations inside parentheses.

Step 2 Multiply and divide from left to right.

Step 3 Add and subtract from left to right.

ordered pair A pair of numbers that shows the position of a point on a coordinate plane.

Example: The ordered pair (3, 4) represents a point 3 units to the right of the *y*-axis and 4 units above the *x*-axis.

origin The point (0, 0) on the coordinate plane.

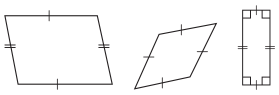
overestimate An estimate that is too big.

Glossary (continued)

P

parallelogram A quadrilateral with two pairs of parallel sides.

Examples:



partial products In a multidigit multiplication problem, the products obtained by multiplying each place value of one factor by each place value of the other.

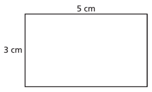
Example: In the problem below, the partial products are in red.

$25 \cdot 53 = 20 \cdot 50 + 20 \cdot 3 + 5 \cdot 50 + 5 \cdot 3$

perimeter The distance around a figure.

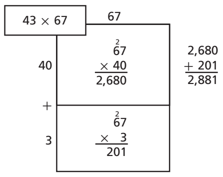
Example:

Perimeter = 2 · 3 cm + 2 · 5 cm = 16 cm



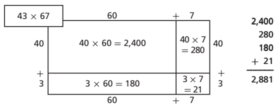
Place Value Rows Method A method used to solve multidigit multiplication problems.

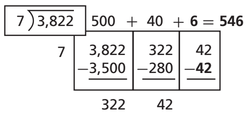
Example:



Place Value Sections Method A method used to solve multidigit multiplication and division problems.

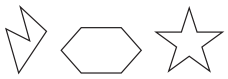
Examples:





polygon A closed two-dimensional shape made from line segments that do not cross each other.

Examples:



power of 10 A power with a base of 10. A number in the form 10^n.

Examples: 10^1, 10^2, 10^3

product The result of a multiplication.

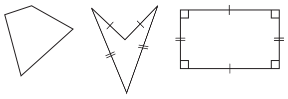
Example:

$\underset{\text{factor}}{\frac{3}{5}} \cdot \underset{\text{factor}}{10} = \underset{\text{product}}{6}$

Q

quadrilateral A closed two-dimensional shape with four straight sides.

Examples:



quotient The answer to a division problem.

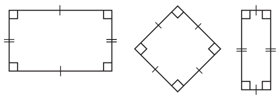
Example:

$\underset{\text{dividend}}{4} \div \underset{\text{divisor}}{\frac{1}{3}} = \underset{\text{quotient}}{12}$

R

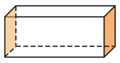
rectangle A parallelogram with four right angles.

Examples:



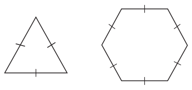
rectangular prism A solid figure with two rectangular bases that are congruent and parallel.

Example:



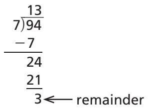
regular polygon A polygon in which all sides and all angles are congruent.

Examples:



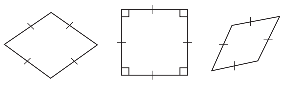
remainder The number left over when a divisor does not divide evenly into a dividend.

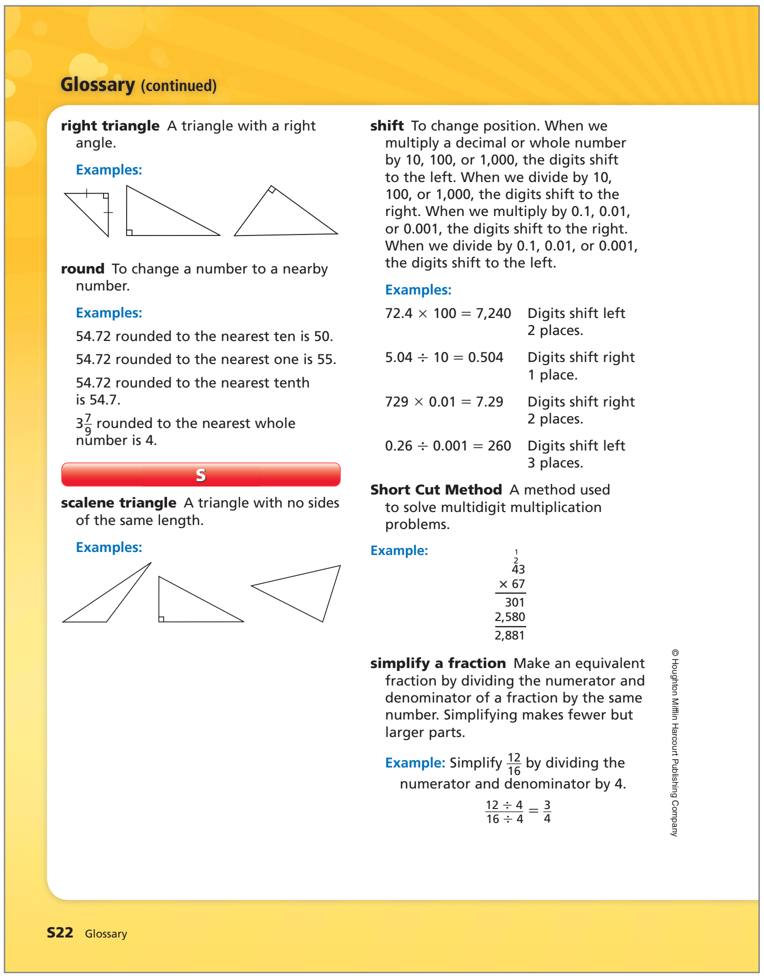
Example:



rhombus A parallelogram with four congruent sides.

Examples:





Glossary (continued)

right triangle A triangle with a right angle.

Examples:

round To change a number to a nearby number.

Examples:

54.72 rounded to the nearest ten is 50.

54.72 rounded to the nearest one is 55.

54.72 rounded to the nearest tenth is 54.7.

$3\frac{7}{9}$ rounded to the nearest whole number is 4.

S

scalene triangle A triangle with no sides of the same length.

Examples:

shift To change position. When we multiply a decimal or whole number by 10, 100, or 1,000, the digits shift to the left. When we divide by 10, 100, or 1,000, the digits shift to the right. When we multiply by 0.1, 0.01, or 0.001, the digits shift to the right. When we divide by 0.1, 0.01, or 0.001, the digits shift to the left.

Examples:

$72.4 \times 100 = 7{,}240$	Digits shift left 2 places.
$5.04 \div 10 = 0.504$	Digits shift right 1 place.
$729 \times 0.01 = 7.29$	Digits shift right 2 places.
$0.26 \div 0.001 = 260$	Digits shift left 3 places.

Short Cut Method A method used to solve multidigit multiplication problems.

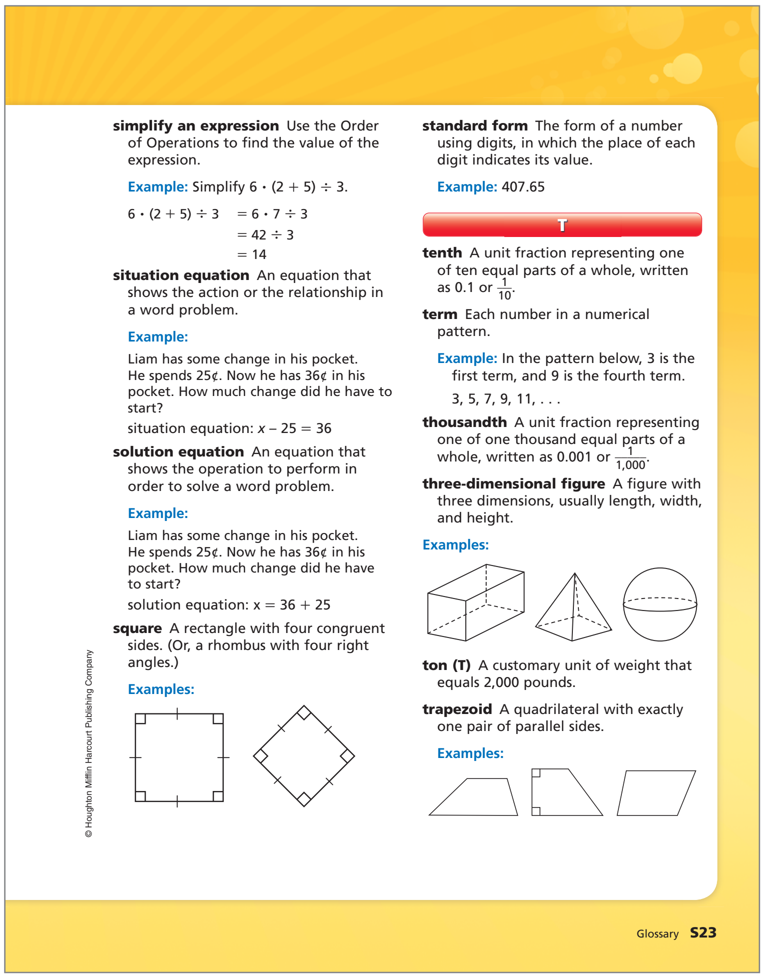
Example:

$$\begin{array}{r} \scriptstyle 1 \\ \scriptstyle 2 \\ 43 \\ \times\ 67 \\ \hline 301 \\ 2{,}580 \\ \hline 2{,}881 \end{array}$$

simplify a fraction Make an equivalent fraction by dividing the numerator and denominator of a fraction by the same number. Simplifying makes fewer but larger parts.

Example: Simplify $\frac{12}{16}$ by dividing the numerator and denominator by 4.

$$\frac{12 \div 4}{16 \div 4} = \frac{3}{4}$$



simplify an expression Use the Order of Operations to find the value of the expression.

Example: Simplify 6 • (2 + 5) ÷ 3.

$$\begin{aligned} 6 \cdot (2 + 5) \div 3 &= 6 \cdot 7 \div 3 \\ &= 42 \div 3 \\ &= 14 \end{aligned}$$

situation equation An equation that shows the action or the relationship in a word problem.

Example:

Liam has some change in his pocket. He spends 25¢. Now he has 36¢ in his pocket. How much change did he have to start?

situation equation: $x - 25 = 36$

solution equation An equation that shows the operation to perform in order to solve a word problem.

Example:

Liam has some change in his pocket. He spends 25¢. Now he has 36¢ in his pocket. How much change did he have to start?

solution equation: $x = 36 + 25$

square A rectangle with four congruent sides. (Or, a rhombus with four right angles.)

Examples:

standard form The form of a number using digits, in which the place of each digit indicates its value.

Example: 407.65

T

tenth A unit fraction representing one of ten equal parts of a whole, written as 0.1 or $\frac{1}{10}$.

term Each number in a numerical pattern.

Example: In the pattern below, 3 is the first term, and 9 is the fourth term.

3, 5, 7, 9, 11, . . .

thousandth A unit fraction representing one of one thousand equal parts of a whole, written as 0.001 or $\frac{1}{1{,}000}$.

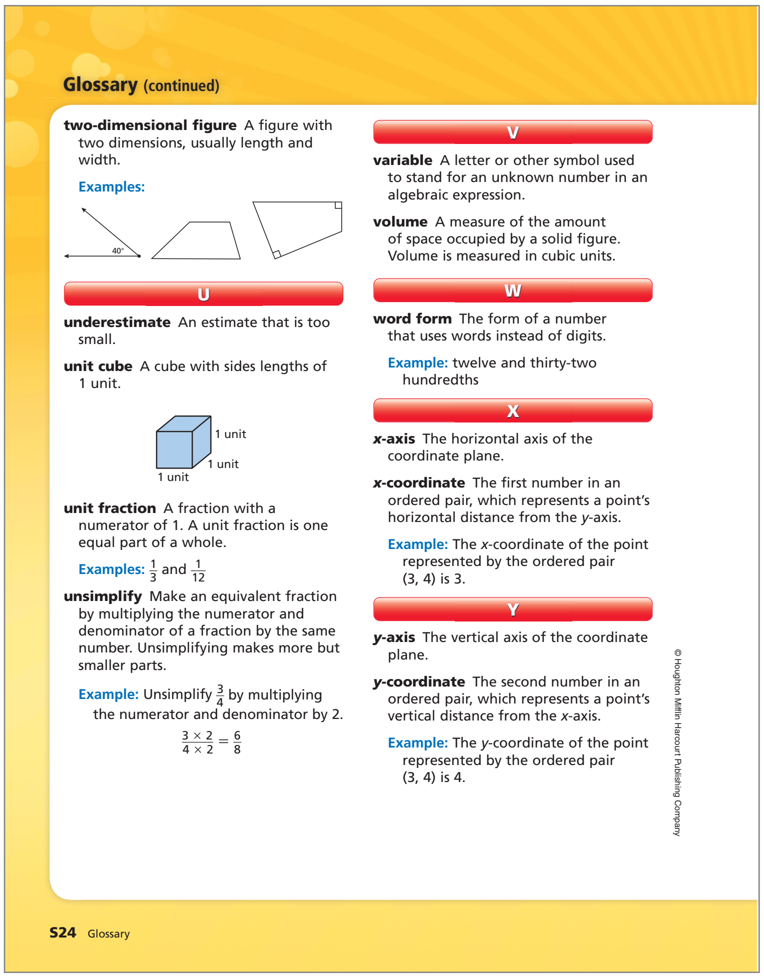
three-dimensional figure A figure with three dimensions, usually length, width, and height.

Examples:

ton (T) A customary unit of weight that equals 2,000 pounds.

trapezoid A quadrilateral with exactly one pair of parallel sides.

Examples:



Glossary (continued)

two-dimensional figure A figure with two dimensions, usually length and width.

Examples:

U

underestimate An estimate that is too small.

unit cube A cube with sides lengths of 1 unit.

unit fraction A fraction with a numerator of 1. A unit fraction is one equal part of a whole.

Examples: $\frac{1}{3}$ and $\frac{1}{12}$

unsimplify Make an equivalent fraction by multiplying the numerator and denominator of a fraction by the same number. Unsimplifying makes more but smaller parts.

Example: Unsimplify $\frac{3}{4}$ by multiplying the numerator and denominator by 2.

$$\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$$

V

variable A letter or other symbol used to stand for an unknown number in an algebraic expression.

volume A measure of the amount of space occupied by a solid figure. Volume is measured in cubic units.

W

word form The form of a number that uses words instead of digits.

Example: twelve and thirty-two hundredths

X

***x*-axis** The horizontal axis of the coordinate plane.

***x*-coordinate** The first number in an ordered pair, which represents a point's horizontal distance from the *y*-axis.

Example: The *x*-coordinate of the point represented by the ordered pair (3, 4) is 3.

Y

***y*-axis** The vertical axis of the coordinate plane.

***y*-coordinate** The second number in an ordered pair, which represents a point's vertical distance from the *x*-axis.

Example: The *y*-coordinate of the point represented by the ordered pair (3, 4) is 4.