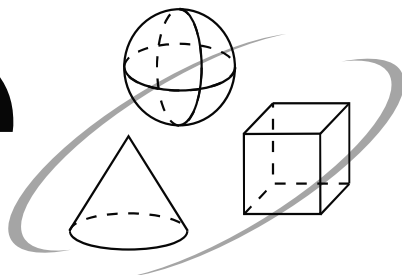


Simple Solutions.



Minutes a Day—Mastery for a Lifetime!

Level 2

3rd Edition

Mathematics

Help Pages

Help Pages

Vocabulary

Arithmetic Operations

Addition → When you combine numbers, you add. The sign "+" means add. The answer to an addition problem is called the *sum*.

Example: When you combine 5 and 2, the sum is 7; $5 + 2 = 7$.

Subtraction → When you take one number away from another, you subtract. The sign "-" means subtract. The answer to a subtraction problem is called the *difference*. **Example:** When you take 1 away from 5, the difference is 4; $5 - 1 = 4$.

Multiplication → When you add a number to itself so many times, you multiply. The sign "x" means multiply. The answer to a multiplication problem is called the *product*. **Example:** When 5 is added to itself 3 times, the product is 15; $5 + 5 + 5$ is the same as $3 \times 5 = 15$.

Division → When you share equally, you divide. The sign "÷" means divide. The answer to a division problem is called the *quotient*. **Example:** When 8 is shared equally between 2, the quotient is 4; $8 \div 2 = 4$.

Geometry

Congruent — figures with the same shape and the same size.

Fraction — a part of a whole. **Example:**  This box has 4 parts. 1 part is shaded. $\frac{1}{4}$

Line of Symmetry — a line along which a figure can be folded so that the two halves match exactly.



Geometry - Shapes and Solids

Cone —



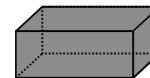
Pyramid —



Cube —



Rectangular Prism —



Cylinder —



Rhombus (diamond) —



Ellipse (oval) —



Sphere —



Help Pages

Vocabulary

Geometry - Polygons			
Number of Sides	Name	Number of Sides	Name
3	Triangle	4	Quadrilateral
Measurement - Relationships			
Time		Distance	
30 minutes = 1 half-hour		12 inches = 1 foot	
		Volume	
60 minutes = 1 hour		4 quarts = 1 gallon	
365 days = 1 year			
Statistics			
<p>Mode — the number that occurs most often in a group of numbers. The mode is found by counting how many times each number occurs in the list. The number that occurs more than any other is the mode. Some groups of numbers have more than one mode.</p> <p>Example: The mode of 77, (93), 85, (93), 77, 81, (93), and 71 is 93. (93 is the mode because it occurs more than the others.)</p>			

Place Value

Whole Numbers			
1,	4	0	5
Thousands	Hundreds	Tens	Ones
<p>The number above is read: one thousand, four hundred five.</p>			

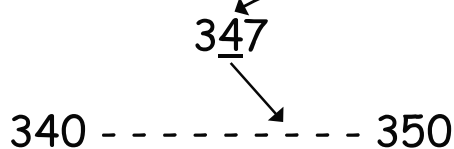
Help Pages

Solved Examples

Whole Numbers (continued)

When we **round numbers**, we are estimating them. This means we focus on a particular place value, and decide if that digit is closer to the next higher number (round up) or to the next lower number (keep the same). It might be helpful to look at the place-value chart on page 149.

Example: Round 347 to the tens place.



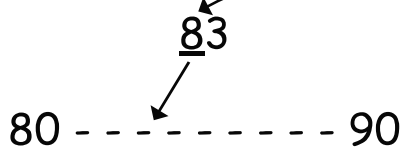
347 is closer to 350, so it is rounded to 350.

350

1. Identify the place that you want to round to.
2. What are the nearest "tens" on either side of the number? (340 and 350)
3. Which of these is 347 closer to?
4. This is the number you round to.

Here is another example of rounding whole numbers.

Example: Round 83 to the nearest ten.



83 is closer to 80, so it is rounded to 80.

80

1. What is the rounding place?
2. What are the nearest "tens" on either side of the number? (80 and 90)
3. Which of these is 83 closer to?
4. This is the number you round to.

Help Pages

Solved Examples

Whole Numbers (continued)

There are **even numbers** and **odd numbers**. A number is even if it ends in 0, 2, 4, 6 or 8. A number is odd if it ends in 1, 3, 5, 7 or 9.

Examples: 46 is an even number because it ends in 6.

11 is an odd number because it ends in 1.

A **fact family** is a set of related facts using addition, subtraction, and the same three numbers.

Example: Write a fact family using 3, 4 and 7.

$$\begin{array}{rcl} 3 + 4 = 7 & & 7 - 3 = 4 \\ 4 + 3 = 7 & & 7 - 4 = 3 \end{array}$$

Numbers can be compared by saying one is **greater than** another or one is **less than** another.

The symbol ">" means *greater than*. The symbol "<" means *less than*.

Hint: The open part of the sign is near the bigger number.

Examples: 10 is less than 18. $\rightarrow 10 < 18$

27 is greater than 13. $\rightarrow 27 > 13$

Help Pages

Solved Examples

Whole Numbers (continued)

When adding or subtracting whole numbers, first the numbers must be lined-up from the right. Starting with the ones place, add (or subtract) the numbers. When adding, if the answer has 2 digits, write the ones digit and regroup the tens digit. For subtraction, it may also be necessary to regroup first. Then, add (or subtract) the numbers in the tens place. Continue with the hundreds, etc.

Look at these examples of **addition**.

Examples: Find the sum of 314 and 12.

Add 648 and 236.

$$\begin{array}{r} 314 \\ + 12 \\ \hline 326 \end{array}$$

1. Line up the numbers on the right.
2. Beginning with the ones place, add. Regroup if necessary.
3. Repeat with the tens place.
4. Continue this process with the hundreds place, etc.

$$\begin{array}{r} & 1 & \\ 648 & & \\ + 236 & & \\ \hline 884 & & \end{array}$$

Use the following examples of **subtraction** to help you.

Example: Subtract 37 from 93.

$$\begin{array}{r} & 8 & 13 & \\ & \cancel{9} & \cancel{3} & \\ - 37 & & & \\ \hline 56 & & & \end{array}$$

1. Begin with the ones place. Check to see if you need to regroup. Since 7 is larger than 3, you must regroup to 8 tens and 13 ones.
2. Now look at the tens place. Check to see if you need to regroup. Since 3 is less than 8, you do not need to regroup.
3. Subtract each place value beginning with the ones.

Help Pages

Solved Examples

Whole Numbers (continued)

Example: Find the difference of 425 and 233.

$$\begin{array}{r} \\ \cancel{4} \cancel{2} 5 \\ - 233 \\ \hline 192 \end{array}$$

1. Begin with the ones place. Check to see if you need to regroup. Since 3 is less than 5, you do not need to regroup.
2. Now look at the tens place. Check to see if you need to regroup. Since 3 is larger than 2, you must regroup to 3 hundreds and 12 tens.
3. Now look at the hundreds place. Check to see if you need to regroup. Since 2 is less than 3, you are ready to subtract.
4. Subtract each place value beginning with the ones.

Sometimes when doing subtraction, you must **subtract from zero**. You will always need to regroup. Use the examples below to help you.

Example: Subtract 38 from 60.

$$\begin{array}{r} \\ \cancel{6} \cancel{0} \\ - 38 \\ \hline 22 \end{array}$$

1. Begin with the ones place. Since 8 is less than 0, you must regroup.
2. Regroup to 5 tens and 10 ones.
3. Then, subtract each place value beginning with the ones.

Example: Find the difference between 500 and 261.

$$\begin{array}{r} \\ \cancel{5} \cancel{0} \cancel{0} \\ - 261 \\ \hline 239 \end{array}$$

Help Pages

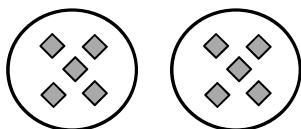
Solved Examples

Whole Numbers (continued)

Multiplication is a quicker way to add groups of numbers. The sign (\times) for multiplication is read "times." The answer to a multiplication problem is called the *product*. Use the examples below to help you understand multiplication.

Example: 2×5 is read "two times five."

It means *2 groups of 5* or $5 + 5$.

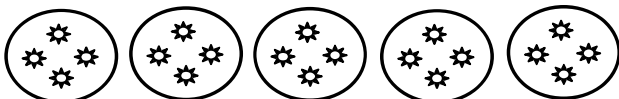


$$2 \times 5 = 5 + 5 = 10$$

The product of 2×5 is 10.

Example: 5×4 is read "five times four."

It means *5 groups of 4* or $4 + 4 + 4 + 4 + 4$.



$$5 \times 4 = 4 + 4 + 4 + 4 + 4 = 20$$

The product of 5×4 is 20.

It is very important that you memorize your **multiplication facts**. This table will help you, but only until you memorize them!

To use this table, choose a number in the top gray box and multiply it by a number in the left gray box. Follow both with your fingers (down and across) until they meet. The number in that box is the product.

An example is shown for you:

$$2 \times 5 = 10$$

\times	0	1	2	5	10
0	0	0	0	0	0
1	0	1	2	5	10
2	0	2	4	10	20
5	0	5	10	25	50
10	0	10	20	50	100

Help Pages

Solved Examples

Whole Numbers (continued)

Division is the opposite of multiplication. The sign (\div) for division is read "divided by." The answer to a division problem is called the *quotient*.

Remember that multiplication is a way of adding groups to get their total. Think of division as the opposite of this. In division, you already know the total and the number in each group. You want to know how many groups there are. Follow the examples below.

Example: What is $9 \div 3$?

(9 items divided into groups of 3)



The total number is 9.

Each group contains 3.



How many groups are there?

There are 3 groups.

$$9 \div 3 = 3$$

Example: Divide 10 by 2.

(10 items divided into groups of 2)



The total number is 10.

Each group contains 2.



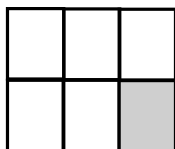
How many groups are there?

There are 5 groups.

$$10 \div 2 = 5$$

Fractions

A **fraction** is used to represent part of a whole. The top number in a fraction is the part. The bottom number in a fraction is the whole.



The whole rectangle has 6 sections.

Only 1 section is shaded.

This can be shown as the fraction $\frac{1}{6}$.

$\frac{1}{6}$	shaded part parts in the whole
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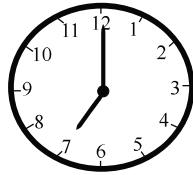
Help Pages

Solved Examples

Time

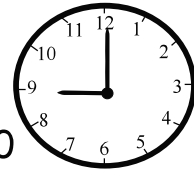
The measure of how long something takes to happen is called **elapsed time**.

Example:



The movie began at 7:00

and ended at 9:00



How long did the movie last? (How much time passed between 7:00 and 9:00?) There are **2 hours** between 7:00 and 9:00.

Example:

How many hours pass from the beginning of Spelling class until the end of Math class?

Class Schedule

8:30 – 9:00	Spelling
9:00 – 10:00	Reading
10:00 – 11:30	Math
11:30 – 12:00	English

Spelling starts at 8:30. Math ends at 11:30. (How much time passes between 8:30 and 11:30?)

There are **3 hours** between 8:30 and 11:30.

Help Pages

"Who Knows?"

Sides in a triangle?.....	(3)
Sides in a square?.....	(4)
Days in a week?.....	(7)
Months in a year?.....	(12)
Days in a year?.....	(365)
Inches in a foot?.....	(12)
Quarts in a gallon?.....	(4)
The number that is seen most often in a set of numbers?.....	(mode)
Figures with the same size and shape?.....	(congruent)
Answer to an addition problem?.....	(sum)
Answer to a subtraction problem?.....	(difference)
Answer to a multiplication problem?.....	(product)