

8-22-11

Wednesday, August 10, 2011
2:06 AM

CHAPTER 1 PRETEST

NAME _____

CLASS _____ SCORE _____ GRADE _____

		ANSWERS
1. What does the digit 8 mean in 4,856,213? [1.1a]		1. _____
2. Write expanded notation: 6987. [1.1b]		2. _____
3. Write a word name: 952,041. [1.1c]		3. _____
4. Add. [1.2a] $\begin{array}{r} 7312 \\ + 2904 \\ \hline \end{array}$	5. Subtract. [1.3a] $\begin{array}{r} 7012 \\ - 2904 \\ \hline \end{array}$	4. _____
6. Multiply. [1.4a] $\begin{array}{r} 684 \\ \times 53 \\ \hline \end{array}$	7. Divide. [1.5a] $23,149 \div 46$	5. _____
8. Round 956,449 to the nearest thousand. [1.6a]		6. _____
9. Estimate the product $594 \cdot 126$ by first rounding the numbers to the nearest hundred. [1.6b]		7. _____
Use < or > for <input type="checkbox"/> to write a true sentence. [1.6c]		8. _____
10. 346 <input type="checkbox"/> 364	11. 111 <input type="checkbox"/> 87	9. _____
		10. _____
		11. _____

ANSWERS	
12. _____	Solve. [1.7b] 12. $19 + x = 53$ 13. $y = 770 + 35$
13. _____	14. $34 \cdot n = 850$ 15. $412 = 0 + m$
14. _____	Solve. [1.8a]
15. _____	16. There are 500 sheets in a ream of paper. How many sheets are in 9 reams?
16. _____	17. A group of 63 language students from VaMard University is planning a year abroad to study German. They decide that each of them will buy the same digital camera. The total cost of the purchase is \$18,837. What is the cost per camera?
17. _____	18. You have \$756 in your checking account. Using your debit card, you pay \$387 for an HDTV for your dorm room. How much is left in your account?
18. _____	19. It has been estimated that by 2015, the costs of each of the four years of college at a public in-state institution will be \$10,627, \$11,371, \$12,167, and \$13,019. Find the total cost of four years of college at that time.
19. _____	Evaluate. [1.9b]
20. _____	20. 10^4 21. 4^3
21. _____	Simplify.
22. _____	22. $8^2 + 8 \cdot 2 - 8$ [1.9c]
23. _____	23. $108 + 9 - \{3 \cdot [18 - (5 \cdot 3)]\}$ [1.9d]
10	

1.1

Standard Notation

OBJECTIVES

- a Give the meaning of digits in standard notation.
- b Convert from standard notation to expanded notation.
- c Convert between standard notation and word names.

- a Give the meaning of digits in standard notation.

A digit is a number 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9 that names a place-value location.

PLACE-VALUE CHART														
Trillions			Billions			Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

Each period has a name: ones, thousands, millions, billions, trillions, and so on.

Give the meaning of digits in standard notation.

For large numbers, digits are separated by commas into groups of three, called periods.

a Give the meaning of digits in standard notation.

PLACE-VALUE CHART														
Trillions			Billions			Millions			Thousands			Ones		
			2	4	5	8	4	0	2	8	1	5	4	8
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones

245 billions. 840 millions. 281 thousands. 548 ones

a Give the meaning of digits in standard notation.

EXAMPLE A Identify the place value of the digit “4” in each number.

1. 234,598 2. 456,901 3. 24,355,567,222

Solution

1. 23**4**,598 4 thousands
2. **4**56,901 4 hundred thousands
3. **24**,355,567,222 4 billions

b Convert from standard notation to expanded notation.

Whole Numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, ...

Natural Numbers: 1, 2, 3, 4, 5, ...

Standard Notation: 34,123

Expanded Notation:

$34,123 = 3 \text{ ten thousands} + 4 \text{ thousands}$
 $+ 1 \text{ hundred} + 2 \text{ tens} + 3 \text{ ones}$

b Convert from standard notation to expanded notation.

EXAMPLE B Write expanded notation for 5280 feet, the number of feet in a mile.

Solution

b Convert from standard notation to expanded notation.

EXAMPLE C Write standard notation for 8 ten thousands + 4 thousands + 5 hundreds + 2 tens + 9 ones.

Solution

C Convert between standard notation and word names.

EXAMPLE D Write a word name for 123.

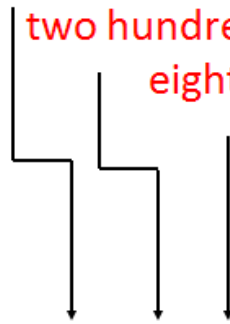
Solution

123 = one hundred twenty-three.

C Convert between standard notation and word names.

EXAMPLE F Write Standard Notation.

Three hundred four million,
two hundred thirty-five thousand,
eight hundred eleven



Solution

Standard notation is 304,235,811.

C Convert between standard notation and word names.

EXAMPLE E Write a word name for 123,456,789.

Solution

1.2

Addition

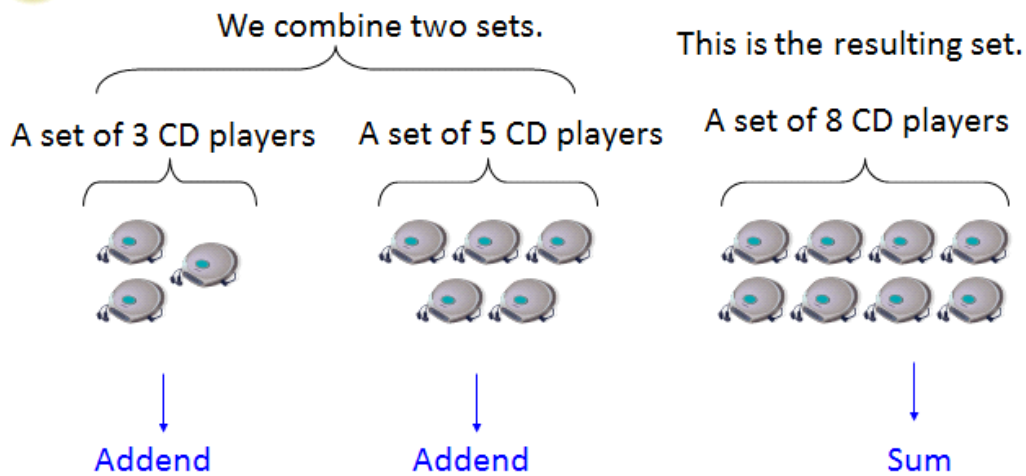
OBJECTIVES

- a Add whole numbers.
- b Use addition in finding perimeter.

a Add whole numbers.

Addition of whole numbers corresponds to combining or putting things together.

a Add whole numbers.



The addition that corresponds to the figure above is

$$\begin{array}{ccccccc} 3 & + & 5 & = & 8 \\ \downarrow & & \downarrow & & \downarrow \\ \text{Addend} & & \text{Addend} & & \text{Sum} \end{array}$$

a Add whole numbers.

EXAMPLE A Add: $8456 + 2484$.

Solution

$$\begin{array}{r} \overset{1}{8} \overset{1}{4} \overset{1}{5} \overset{1}{6} \\ + 2 \ 4 \ 8 \ 4 \\ \hline 1 \ 0 \ 9 \ 4 \ 0 \end{array}$$

Add ones. We get 10 ones. Write the 0 in the ones column and 1 above the tens. This is called *carrying*, or *regrouping*.

Add tens. We get 14 tens. Write 4 in the tens column and 1 above the hundreds.


Add hundreds. We get 9 hundreds. Write 9 in the hundreds column.

Add thousands. We get 10 thousands

a Add whole numbers.

EXAMPLE B Add: $3401 + 4387 + 9765 + 1356$.

Solution

$$\begin{array}{r} \overset{1}{3} \ \overset{2}{4} \ \overset{1}{0} \ \overset{1}{1} \\ 4 \ 3 \ 8 \ 7 \\ 9 \ 7 \ 6 \ 5 \\ + 1 \ 3 \ 5 \ 6 \\ \hline \end{array}$$


Add ones. We get 19. Write 9 in the ones column and 1 above the tens.

Add tens. We get 20. Write 0 in the tens column and 2 above the hundreds.

Add hundreds. We get 19. Write 9 in the hundreds column and 1 above the thousands.

Add thousands. We get 18.

Perimeter

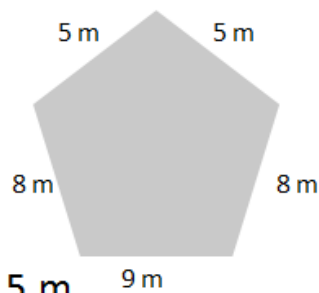
The distance around an object is its **perimeter**.

b Use addition in finding perimeter.

EXAMPLE C Find the perimeter of the object shown.

The letter *m* denotes *meters* (a meter is slightly more than 3 ft).

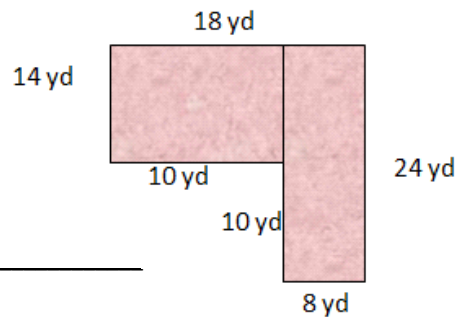
Solution



$$\begin{aligned} \text{Perimeter} &= 5 \text{ m} + 8 \text{ m} + 9 \text{ m} + 8 \text{ m} + 5 \text{ m} \\ &= 35 \text{ m} \end{aligned}$$

b Use addition in finding perimeter.

EXAMPLE D Find the perimeter of the figure shown.



Solution

1.3

Subtraction

OBJECTIVE

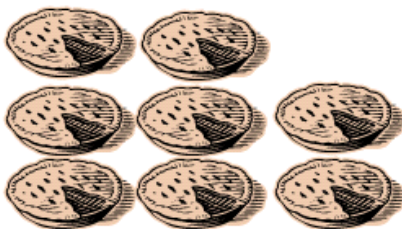
a Subtract whole numbers.

a Subtract whole numbers.

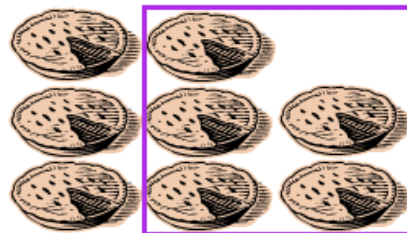
Subtraction of whole numbers applies to two kinds of situations. The first is called “take away.”

a Subtract whole numbers.

A restaurant starts with 8 pies and sells 5 of them.



8



$$8 - 5 = 3$$

The minuend is the number from which another number is being subtracted.

The subtrahend is the number being subtracted.

The difference is the result of subtracting the subtrahend from the minuend.

$$\begin{array}{ccccccc} 8 & - & 5 & = & 3 & & \\ \text{Minuend} & & \text{Subtrahend} & & \text{Difference} & & \end{array}$$

Subtraction

The difference $a - b$ is that unique number c for which $a = c + b$.

a Subtract whole numbers.

EXAMPLE A Write a relation addition sentence:

$$9 - 4 = 5.$$

Solution

$$9 - 5 = 4$$

This number
gets added

$$9 = 4 + 5$$

a Subtract whole numbers.

EXAMPLE B Write two related subtraction sentences:

Solution $6 + 8 = 14.$

$$6 + 8 = 14.$$

↑
This addend gets
subtracted from
the sum.

$$6 = 14 - 8$$

$$6 + 8 = 14.$$

↑
This addend gets
subtracted from
the sum.

$$8 = 14 - 6$$

The related subtraction sentences are $6 = 14 - 8$ and $8 = 14 - 6$.

EXAMPLE B Write **two** related subtraction sentences:

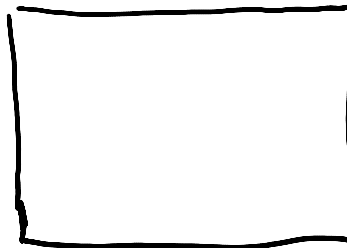
Solution $6 + 8 = 14.$

$$6 + 8 = 14.$$

↑
This addend gets
subtracted from
the sum.

$$6 = 14 - 8$$

$$6 + 8 = 14.$$

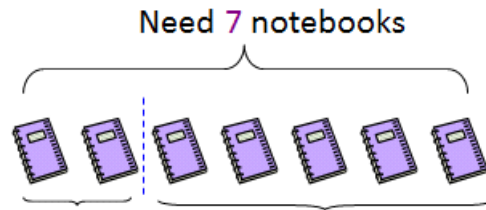


a Subtract whole numbers.

The second kind of situation to which subtraction can apply is called “how many more”.

a Subtract whole numbers.

You have 2 notebooks, but you need 7. You can think of this as “how many do I need to add to 2 to get 7?”



Have 2 notebooks 5 notebooks

What must be added to 2 to get 7?
The answer is 5.

a Subtract whole numbers.

EXAMPLE C Subtract: $8453 - 2311$.

Solution

$$\begin{array}{r} 8453 \\ - 2311 \\ \hline 6142 \end{array}$$

Subtract ones.

Subtract tens.

Subtract hundreds.

Subtract thousands.

a Subtract whole numbers.

EXAMPLE D Subtract: $5024 - 1956$. (Hint: We need to borrow).

Solution

$$\begin{array}{r} 11 \\ 4914 \\ 5\cancel{0}\cancel{2}4 \\ - 1956 \\ \hline \end{array}$$



a Subtract whole numbers.

EXAMPLE E Subtract $7000 - 2754$.

Solution

$$\begin{array}{r} 6 9 9 10 \\ 7 0 0 0 \\ - 2 7 5 4 \\ \hline \end{array}$$

