1503				4	
	.0	DEN	T B	00 <sub>4</sub>	
	57			*	
	1				
	A				
	1	ESS	ON		
-	0000	1000	101-1	10.00	29

Whole Numbers to 10 000

#### **Quick Review**

You can show the number 1453 in different ways:

Use Base Ten Blocks.



1 thousand 4 hundreds

an bill brack sta	
	daa
and the second second	400

-

Use a place-value chart.

5 tens 3 ones

Thousands	Hundreds		
1	A	Tens	Ones
	4	5	3

➤ Use expanded form. 1453 = 1000 + 400 + 50 + 3

► Use words. 1453 = one thousand four hundred fifty-three

The number 1453 is written in standard form. Every digit has a place value, depending on its position.

#### Try These

1. Write each number in standard form.

a) two thousand six hundred thirteen

- **b)** 8000 + 600 + 40 + 1
- 2. Write each number in expanded form.
  - a) 7125 \_\_\_\_\_ b) 2307 \_\_\_\_\_

3. Write each number in words.

a) 1620 \_\_\_\_\_

**b)** 3408 \_\_\_\_\_

12

**1.** Complete the chart.

Standard Form	Expanded Form
 ura na sé Marina	

. . . . . . . . . . . . . . . . . . .

. . . . . . . . . . .

**2.** Write each number in words.

- a) 3602 \_\_\_\_\_
- **b)** 5045 \_\_\_\_\_

3. Use each of these digits once to make each 4-digit number: 4, 2, 7, 5

- a) the greatest possible number
- b) the least possible number \_\_\_\_\_
- c) the greatest number with 5 tens
- d) the least number with 5 ones \_\_\_\_\_

#### **Stretch Your Thinking**

Use 5, 3, 1, and 7 once in each number you make. Make as many 4-digit numbers as you can.



## **Rounding Numbers**

At

Quick Review
<ul> <li>Round 3482 to the nearest thousand. 482 is closer to 0 than to 1000. So, 3482 rounds to 3000. 3482</li> <li></li></ul>
3482 $3400$ $3450$ $3450$ $3500$ $3500$ $3400$ $3482$ to the nearest <b>ten</b> . 2 is closer to 0 than to 10. So, 3482 rounds to 3480. $3482$ $480$ $3482$ $3482$ $3480$ $3485$ $3490$
Try These Use a number line when it helps. 1. Round to the nearest thousand.
<ul> <li>a) 1489 b) 6973 c) 4215</li> <li>2. Round to the nearest hundred.</li> </ul>
<ul> <li>a) 5867 b) 8214 c) 7098</li> <li>3. Round to the nearest ten.</li> </ul>
a) 6281 b) 5389 c) 2302

Use this table for questions 1 and 2.

#### Attendence at a Baseball Game

Day	Number of People		
Friday	3741		
Saturday	4352		
Sunday	4837		

- Round each number to the nearest thousand. \_\_\_\_\_\_
   On which day did about 5000 people attend the baseball game?
- Round each number to the nearest hundred. \_\_\_\_\_
   On which day did about 4400 people attend the baseball game?
- 3. Write three numbers that round to 2540 when rounded to the nearest ten.
- **4.** Write three numbers that round to 3600 when rounded to the nearest hundred.
- Write three numbers that round to 8000 when rounded to the nearest thousand.
- 6. A number is rounded to the nearest ten, nearest hundred, and nearest thousand. All the rounded numbers are 8000. What was the number

before it was rounded?

#### **Stretch Your Thinking**

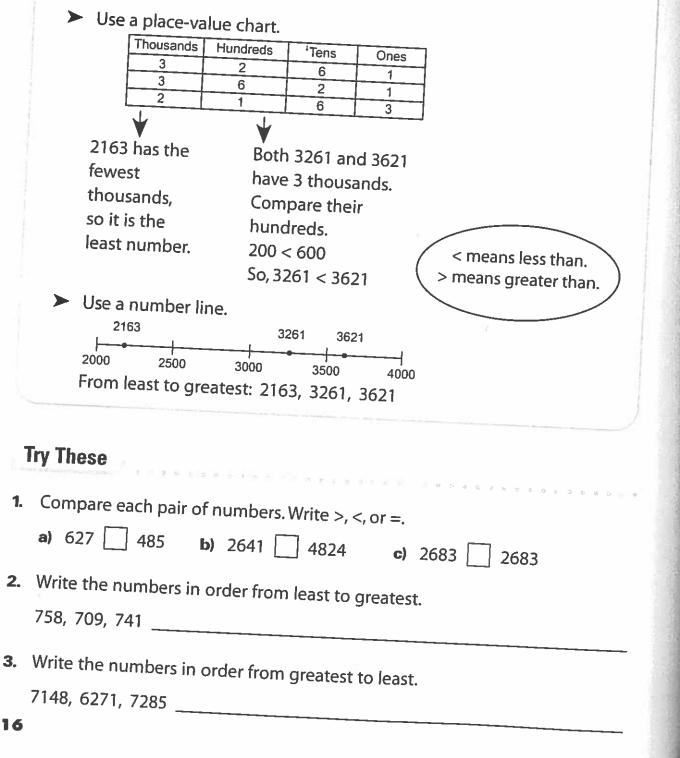
How many numbers less than 1000 would round to 1000 when rounded to the nearest hundred? Explain.



### **Comparing and Ordering Numbers**

#### **Quick Review**

Here are some ways to order the numbers 3261, 3621, and 2163 from least to greatest.

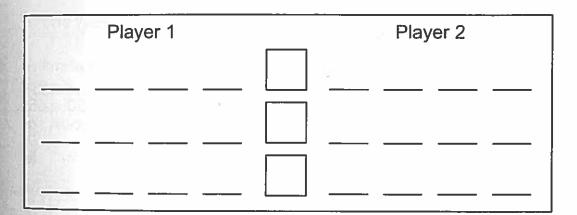


1. Play this game with a partner.

The object of the game is to make the greater number. You will need a paper bag containing 10 cards with the digits 0 to 9.

- Draw a card from the bag. Record the digit in any space in the first row of your game board. Return the card to the bag.
- > Take turns until each player fills all four spaces in a row.
- Compare your numbers.
   Write > or < in the box between the numbers.</li>
   The player with the greater number wins a point.
- > Play two more rounds.

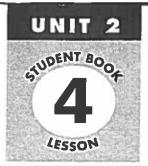
The player with the most points at the end of the game wins.



- 2. a) Put your numbers from the game in order from least to greatest.
  - b) Put your partner's numbers in order from greatest to least.

#### Stretch Your Thinking

Make up three 4-digit numbers. Order the numbers from greatest to least.



### **Estimating Sums**

#### **Quick Review**

When a question asks "about how many," you can estimate. Here are some ways to estimate the sum of 294 + 351.

► Use rounding.

Round each number to the nearest 100 and add. 300 + 400 = 700 So, 294 + 351 is about 700.  Use clustering.
 Both 294 and 351 are about 300.
 300 + 300 = 600
 So, 294 + 351 is about 600.

 Use front-end estimation. Add the first digits of the numbers.
 200 + 300 = 500 So, 294 + 351 is about 500.

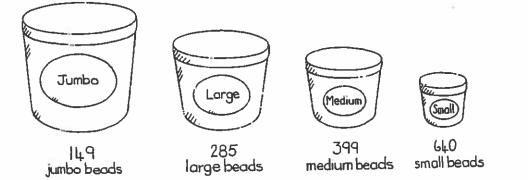
For a better estimate: Think about 94 and 51. This is about 100 + 50 = 150. So, 294 + 351 is about 500 + 150 = 650.

#### **Try These**

1. Estimate each sum.

<b>a)</b> 198 + 389	<b>b)</b> 119 + 408	<b>c)</b> 640 + 192
Estimate: d) 79 + 272	Estimate: e) 516 + 482	Estimate: f) 291 + 291
Estimate:	Estimate:	Estimate:

2. William estimated 246 + 585 as 700. Is his estimate high or low? Explain.



- 1. About how many beads would you have if you bought these sizes:
  - a) small and large? \_\_\_\_\_
     b) medium and jumbo? \_\_\_\_\_
  - c) medium and large? \_\_\_\_\_\_d) jumbo and small? \_\_\_\_\_\_
- 2. The toy shop sold 117 wind-up cars and 289 battery-operated cars

in one week. About how many cars did it sell? \_\_\_\_\_\_

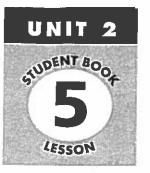
**3.** Yolanda has a desktop publishing business. She wants to print 1000 items today. She actually prints 352 brochures and 581 flyers today.

a) About how many items did she print? \_\_\_\_\_

- **b)** Did Yolanda make her goal? Explain.
- 4. Last summer, 227 children signed up for T-ball and 139 signed up for baseball. About how many children signed up altogether? \_\_\_\_\_

#### **Stretch Your Thinking**

The estimated sum of two numbers is 1000. What might the numbers be? Give three different answers.



### **Using Mental Math to Add**

#### **Quick Review**

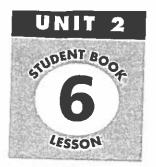
Use mental math to add: 267 + 197 Use the strategy of "make a friendly number." 197 is 200 - 3. Add 200, then take away 3. 267 + 200 = 467200 is a friendly number 467 - 3 = 464because it is easy to add 200. So, 267 + 197 = 464 Use mental math to add: 271 + 580 Make a "friendly" number. 580 + 20 = 600271 - 20 = 251600 is a friendly number. 50,271 + 580 = 600 + 251 = 851 $\blacktriangleright$  Use mental math to add: 415 + 342 Use the strategy of "adding on." Add on hundreds, then tens, and then ones. Think: 415 + 300 + 40 + 2Count on 3 hundreds: 415, 515, 615, 715 Count on 4 tens: 715, 725, 735, 745, 755 Then add 2: 755 + 2 = 757So, 415 + 342 = 757

#### **Try These**

- 1. Use mental math to add.
  a) 262 + 345 = \_\_\_\_\_ b) 497 + 222 = \_\_\_\_ c) 370 + 163 = \_\_\_\_\_
  d) 399 + 544 = \_\_\_\_\_ e) 262 + 290 = \_\_\_\_ f) 196 + 341 = \_\_\_\_\_
- 2. Becky gathered 316 clams and Charlie gathered 286.

How many clams did they gather in all? Use mental math to find out.

<b>l</b> d <sub>c</sub>	Practice	
	Jse mental math.         Add.         a) $690 + 284 = $ b) $131 + 468 = $ c) $352 + 213 = $ d) $229 + 493 = $	
	For which problems did you make a "friendly" number?	-
	<ul> <li>a) farm animals and zoo animals</li> <li>b) sea creatures and jungle animals</li> </ul>	
	c) zoo animals and jungle animals	
	<ol> <li>Ridgetown has a population of 317 people.</li> <li>Mayberry has a population of 291.</li> </ol>	
	How many people live in the two towns?	
	4. The cafeteria sold 123 cartons of chocolate milk and 204 cartons of	
	white milk. How many cartons of milk were sold?	
	Stretch Your Thinking	
1	Use mental math to add: 453 + 197 + 205 =	
	Describe the strategy you used	-
		-



### **Adding 3-Digit Numbers**

#### **Quick Review**

Geraldo has 276 hockey cards and 397 baseball cards. To find how many cards Geraldo has in all, add: 276 + 397

Here are some ways to add:

<u>+ 397</u> > <u>300</u>	' ) + 70 + 6 <u>) + 90 + 7</u> ) + 160 + 13 = 660 +	13 = 673
Regroup 13 ones as	Add the tens: 17 tens Regroup 17 tens as 1 hundred and 7 tens.	6 hundreds
1 27 <b>6</b>	11 2 <b>7</b> 6	11

276	• •	0 11
27 <b>6</b>	2 <b>7</b> 6	<b>2</b> 76
<u>+ 39<b>7</b></u>		270
<u>+ 39/</u>	<u>+ 397</u>	<u>+ <b>3</b>97</u>
3		
5	<b>7</b> 3	<b>6</b> 73

Geraldo has 673 cards in all.

**Try These** 

**1.** Add.

aì	295	<b>b)</b> 327	1 000				
		NI 321	<b>c)</b> 299	d)	508		285
_	<u>+ 104</u>	<u>+ 415</u>	+ 162	-		-	
-		<u> </u>	<u>+ 463</u>		<u>+ 419</u>		<u>+ 79</u>

2. There were 139 more people at the soccer game on Saturday than on Friday. On Friday there were 472 people at the game.

How many people were at the game on Saturday?

S

- 1. Estimate first.
  - Circle the letters next to the examples for which

the sum will be less than 900.

Then, add to find all the sums.

<b>a)</b> 738	<b>b)</b> 637	<b>c)</b> 109	d) 718	e) 367
+ 191	<u>+ 439</u>	<u>+ 488</u>	<u>+ 237</u>	<u>+ 662</u>
f) 482	<b>g)</b> 234	<b>h)</b> 689	i) 651	j) 318
<u>+ 519</u>	<u>+ 410</u>	<u>+ 130</u>	<u>+ 259</u>	<u>+ 491</u>

2. Estimate first.

Circle the letters next to the examples for which the sum will be greater than 700.

Then, add to find all the sums.

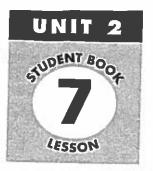
<b>a)</b> 418	<b>b</b> ) 526	<b>c)</b> 381	<b>d)</b> 108	<b>e)</b> 397
+ 231	<u>+ 437</u>	<u>+ 294</u>	<u>+ 592</u>	<u>+ 459</u>
<b>f)</b> 362	<b>g)</b> 583	<b>h)</b> 435	i) 339	j) 282
<u>+ 282</u>	<u>+ 199</u>	<u>+ 428</u>	<u>+ 382</u>	<u>+ 531</u>

- 3. Use expanded form to add. Show your work.
   a) 352
   b) 453
   <u>+ 539</u>
   <u>+ 372</u>
- **4.** What is the greatest number you can add to 457 without having to regroup in any place?

#### **Stretch Your Thinking**

The sum of two numbers is 853. What might the numbers be?

Find two pairs of numbers.



### **Adding 4-Digit Numbers**

4225

#### **Quick Review**

Add: 1756 + 2469

Use expanded form to add.

1756	 $\rightarrow$	1000	+	700	+	50 +	6	
<u>+ 2469</u>	 $\rightarrow$	<u>2000</u>		<u>400</u>	+	60 +		
		3000	+ 1	100	+	110 +		
			¥			↓ I		
		41	00	+	-	125		=

Use place value to add.

Add the ones. Add the tens. Add the hundreds. Add the thousands.

Regroup.	Regroup.	Regroup.	
1 175 <b>6</b> <u>+ 246<b>9</b></u> <b>5</b>	11 17 <b>5</b> 6 <u>+ 24<b>6</b>9</u> <b>2</b> 5	111 1 <b>7</b> 56 <u>+ 2<b>4</b>69</u> <b>2</b> 25	111 <b>1</b> 756 <u>+ <b>2</b>469</u> <b>4</b> 225
			7223

Estimate to check that the sum is reasonable.

1756 rounds to 2000. 2469 rounds to 2000. 2000 + 2000 = 4000	4225 rounds to 4000. So, the sum is reasonable.
--	--

#### **Try These**

1. Find each sum. Estimate to check.

a)	5558	<b>b</b> )	3047	<b>c</b> )	4189	d)	1847
4	<u>+ 1343</u>	-	<u>+ 2828</u>		<u>+ 3673</u>	-	- 5684

2. Estimate each sum.

a)	3276 + 4192	<b>b)</b> 1258 + 3769	<b>c)</b> 2672 + 3409
	Estimate:	Estimate:	Estimate:

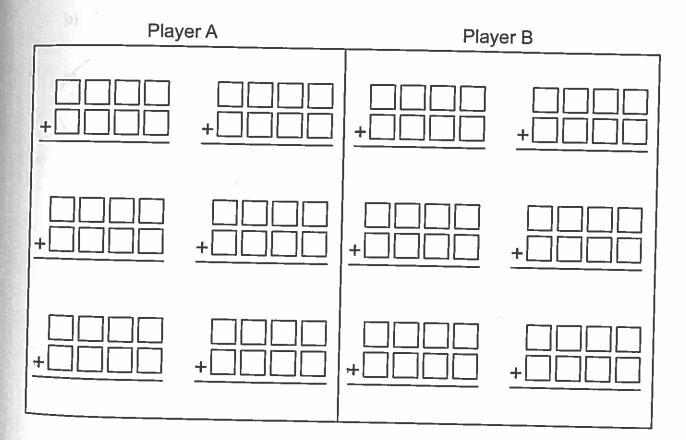
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tome of

- Play this game with a partner. You will need: 1 number cube
  - Take turns rolling the number cube. On each roll, both players record the digit rolled in one of the boxes in their first addition grid.
  - ► After 8 rolls, players add.

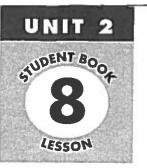
The player with the greater sum wins.

Repeat with the other addition grids.

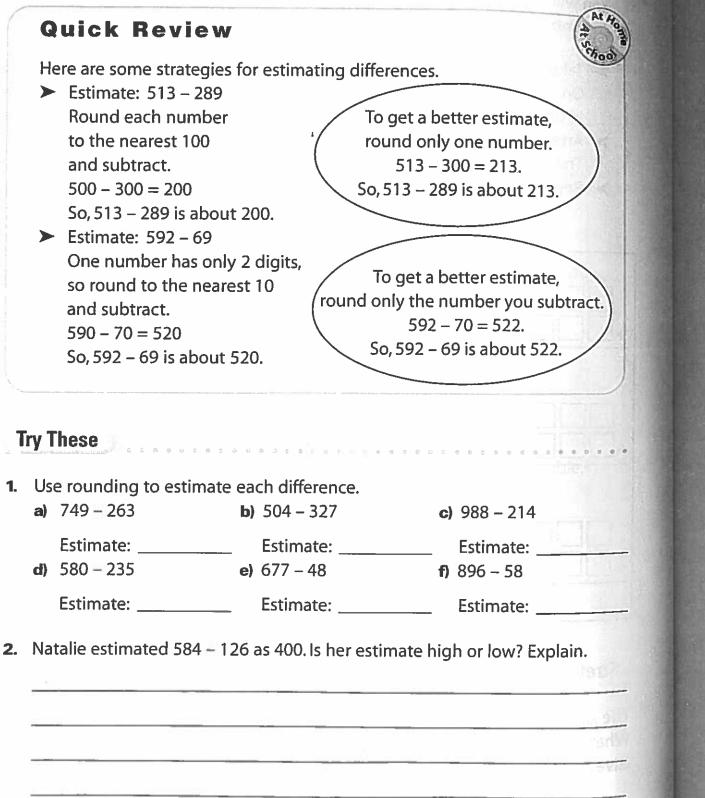


#### Stretch Your Thinking

The sum of two 4-digit numbers is 4589. What might the two numbers be? Give two different answers.



### **Estimating Differences**



#### School Lunches Served

Number Served
286
327
489
417
648

- 1. Use the data in the chart to estimate each difference.
  - a) About how many more lunches were served on Friday

than on Monday? \_\_\_\_\_

b) About how many more lunches were served on Thursday

than on Tuesday? \_\_\_\_\_

c) About how many more lunches were served on Wednesday

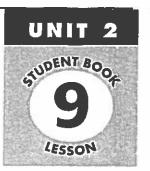
than on Tuesday?

- **2.** Laleh estimated the difference of 765 and 411 as 400, and Sam estimated the difference as of 365.
  - a) How might Laleh have estimated?
  - **b)** How might Sam have estimated?
  - c) Whose estimate is better? Explain.

#### **Stretch Your Thinking**

Find a pair of 3-digit numbers that have an estimated difference of 520.

1



### Using Mental Math to Subtract

#### **Quick Review**

Here are some strategies for using mental math to subtract.

Use the strategy of "make a friendly number."
 Subtract: 719 - 398
 Add 2 to 398 to make 400.
 Subtract 100 instead of 103.
 Add 2 to 719 to make 721.
 437 - 100 = 337
 721 - 400 = 321
 So, 719 - 398 = 321
 337 - 3 = 334
 So, 437 - 103 = 334

Use the strategy of "counting on."
 Subtract: 441 - 230
 Count: 230 330 430 440 441
 +100 +100 +10 +1 = 211
 So, 441 - 230 = 211

**Try These** 

1. Use mental math to subtract.

<b>a)</b> 427 – 299 =	<b>b)</b> 625 – 495 =	<b>c)</b> 586 - 397 =
<b>d)</b> 256 – 101 =	<b>e)</b> 748 – 403 =	<b>f</b> ) 462 - 202 =
<b>g)</b> 272 – 150 =	<b>h</b> ) 758 – 547 =	I) 894 - 673 =

S

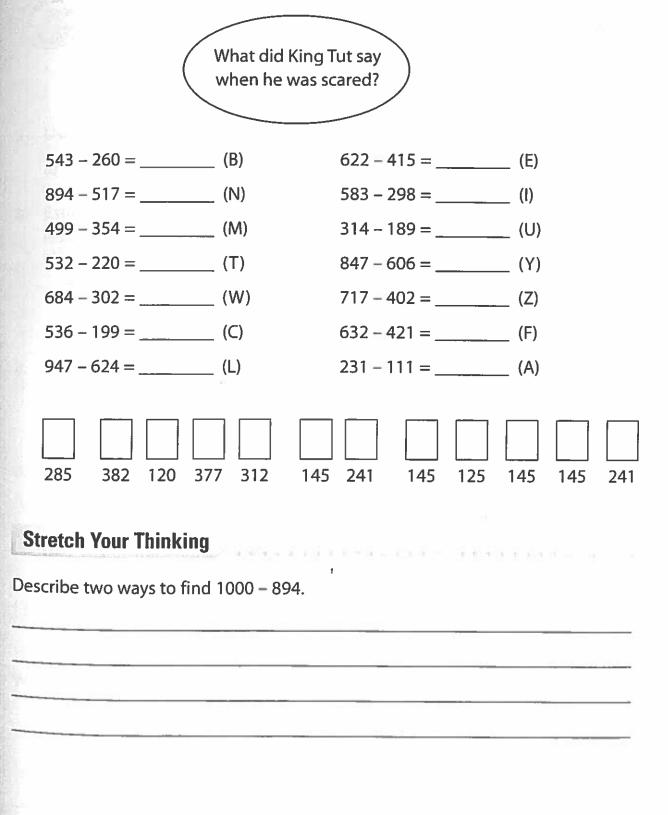
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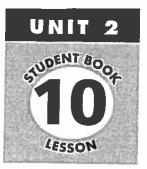
- Laslo travelled 637 km on Saturday and 402 km on Sunday. How much further did he travel on Saturday than on Sunday? Use mental math to find out.
- **3.** The hot dog stand served 250 hot dogs on Friday and 481 on Saturday. How many more hot dogs were served on Saturday than on Friday?

Use mental math to find out. \_\_\_\_\_

28

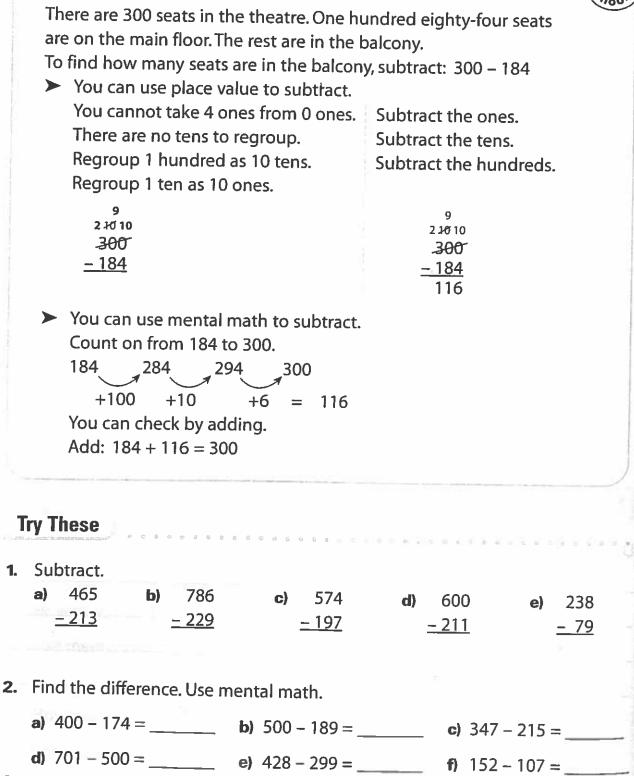
Use mental math to find each difference.
 Then use the letters next to the differences to solve the riddle.





### Subtracting 3-Digit Numbers

#### **Quick Review**



30

Subtract. Check your answers.

a) 836 <u>- 451</u>	Check:	<b>b)</b> 726 <u>– 538</u>	Check:	<b>c)</b> 736 <u>- 528</u>	Check:	

2. Use mental math to find each difference.

**a)** 400 - 263 = **b)** 501 - 248 = **c)** 450 - 231 =

**3.** Estimate first. Then subtract the numbers for which the difference will be less than 300.

a)	591	<b>b</b> ) 4	436	<b>c</b> )	624	<b>d</b> )	716	•	327
=	<u>375</u>		<u>168</u>		<u>- 235</u>	:	<u>- 371</u>		<u> </u>

**4.** Ms. Green's class collected 600 cans for recycling. Mr. Hso's class collected 427 cans.

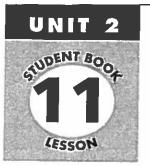
How many more cans did Ms. Green's class collect?

5. Sanil's school had a book sale.On Monday they sold 697 books.On Tuesday they sold 842 books.

How many more books did they sell on Tuesday? \_\_\_\_\_

#### Stretch Your Thinking

The difference of two numbers is 329. What might the numbers be? Find two pairs of numbers.



# Subtracting from a 4-Digit Number

4+ 50

#### **Quick Review**

Subtract: 2053 – 993 Use place value.	7	theor
Regroup 1 ten as	Regroup 1 thousand	Subtract the tens.
10 ones.	as 10 hundreds.	Subtract the hundreds.
Subtract the ones.	Regroup 1 hundred	Subtract the thousands.
	as 10 tens.	
	9 14	9 14
4 13	1.40413	1 10-4713
2053	-2053	-2053
<u>– 997</u>	<u>- 997</u>	<u>– 997</u>
6	6	1056
Check.		۵. ۲
By adding:	➤ By est	imating:
997	2000 -	-1000 = 1000
<u>+ 1056</u>		is close to 1056.
2053		
The sum should I	So, the	e answer is reasonable.
		and the second se
the number you	started with.	- dire

#### **Try These**

1. Subtract.

<b>a)</b> 4532	<b>b)</b> 5726	<b>c)</b> 7243	<b>d)</b> 4029
<u>– 121</u>	<u>- 248</u>	<u>- 685</u>	<u>- 388</u>

#### 2. Subtract. Check your answer.

<b>a)</b> 9354 <u>- 287</u>	Check:	<b>b)</b> 7600 <u>- 452</u>	Check:
		>	

Estimate. Th	ien subtract.		
a) 3059	<b>b)</b> 5138	<b>c)</b> 8209	<b>d)</b> 5439
<u>– 298</u>	<u>- 479</u>	<u>      919                             </u>	<u>– 216</u>

Estimate: \_\_\_\_\_\_ Estimate: \_\_\_\_\_\_ Estimate: \_\_\_\_\_\_ Estimate: \_\_\_\_\_\_

Manjit and Irene like to collect acorns.

Manjit collected 1286 acorns and Irene collected 898.

How many more acorns did Manjit collect than Irene?

**3.** Play this game with a partner.

You will need: 1 number cube Paper Pencils

► Each player draws a subtraction grid like this:

- Take turns rolling the number cube. After each turn, both players record the digit rolled in any box in their grid.
- After 7 rolls, players subtract. The player with the greater difference wins.
   Play 5 or more games.

#### **Stretch Your Thinking**

A 3-digit number is subtracted from a 4-digit number. The difference is 426. What could the two numbers be? Give two answers.