Whole Numbers to 10 000

Quick Review

You can show the number 1453 in different ways.

➤ Use Base Ten Blocks.

1 thousand   4 hundreds   5 tens   3 ones

➤ Use a place-value chart.

Thousands	Hundreds	Tens	Ones
1	4	5	3

➤ Use **expanded form.** $1453 = 1000 + 400 + 50 + 3$
➤ Use words.   1453 is 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   __2613__

   b) $8000 + 600 + 40 + 1$ __8641__

2. Write each number in expanded form.

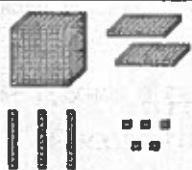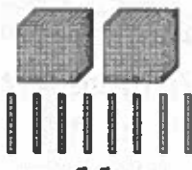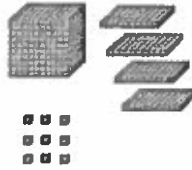   a) 7125 __$7000 + 100 + 20 + 5$__   b) 2307 __$2000 + 300 + 7$__

3. Write each number in words.

   a) 1620 __one thousand six hundred twenty__

   b) 3408 __three thousand four hundred eight__

12

1. Complete the chart.

	Standard Form	Expanded Form
	1235	1000 + 200 + 30 + 5
	2082	2000 + 80 + 2
	1409	1000 + 400 + 9

2. Write each number in words.

a) 3602 **three thousand six hundred two**

b) 5045 **five thousand forty-five**

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

a) the greatest possible number **7542**

b) the least possible number **2457**

c) the greatest number with 5 tens **7452**

d) the least number with 5 ones **2475**

Stretch Your Thinking

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

1357, 1375, 1537, 1573, 1735, 1753, 3157, 3175, 3517, 3571, 3715, 3751,

5137, 5173, 5317, 5371, 5713, 5731, 7135, 7153, 7315, 7351, 7513, 7531

Comparing and Ordering Numbers

Quick Review

Here are some ways to order the numbers 3261, 3621, and 2163 from least to greatest.
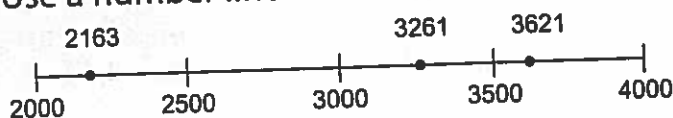
➤ Use a place-value chart.

Thousands	Hundreds	Tens	Ones
3	2	6	1
3	6	2	1
2	1	6	3

2163 has the fewest thousands, so it is the least number.

Both 3261 and 3621 have 3 thousands. Compare their hundreds. $200 < 600$ So, $3261 < 3621$

< means less than. > means greater than.

➤ Use a number line.

2163   3261   3621

2000   2500   3000   3500   4000

From least to greatest: 2163, 3261, 3621

Try These

1. Compare each pair of numbers. Write >, <, or =.

   a) 627 $\boxed{>}$ 485   b) 2641 $\boxed{<}$ 4824   c) 2683 $\boxed{=}$ 2683

2. Write the numbers in order from least to greatest.

   758, 709, 741 **709, 741, 758**

3. Write the numbers in order from greatest to least.

   7148, 6271, 7285 **7285, 7148, 6271**

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.
       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.

    Sample Outcome

Player 1					Player 2			
8	1	4	3	>	4	5	0	9
4	0	7	4	<	5	2	4	1
9	5	2	1	>	7	6	3	2

2. a) Put your numbers from the game in order from least to greatest.

       Sample Answer: 4074, 8143, 9521

    b) Put your partner's numbers in order from greatest to least.

       Sample Answer: 7632, 5241, 4509

Stretch Your Thinking . . . .

Make up three 4-digit numbers.
Order the numbers from greatest to least.
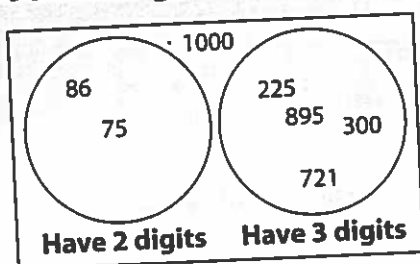
Sample Answer: 9876, 8750, 6349

Sorting Numbers

At Home At School
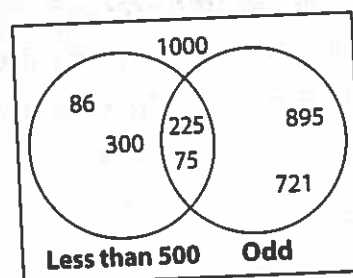
Quick Review

Here are four ways to sort these numbers.

86   225   895   300   75   1000   721

Venn Diagram

Have 2 digits   Have 3 digits

Venn Diagram

Less than 500   Odd

Venn Diagram

Greater than 200

Odd
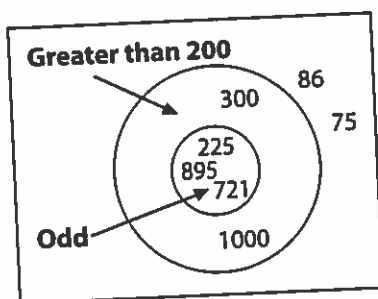
Carroll Diagram

	Digits add to less than 10	Digits add to 10 or more
Even	300 1000	86
Odd	225	75 721 895

Try These

1. Use each Venn diagram to sort these numbers.
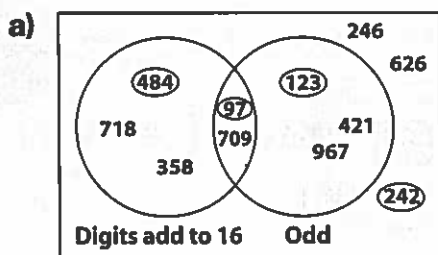
   94   27   85   13   44   76

a)

Odd   Even

b)

Less than 50   Multiples of 2

c)

Digits add to 13

Even

16
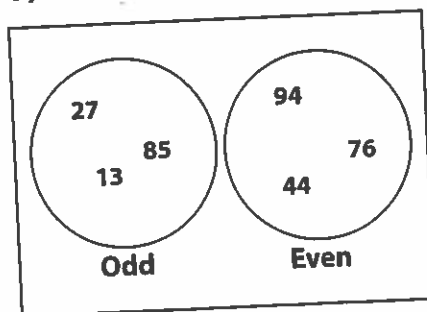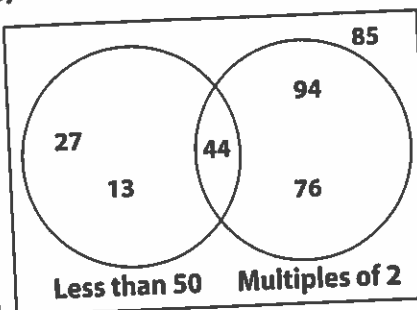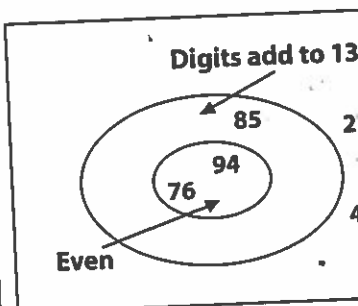
1. Sort these numbers in each Venn diagram.

   421 718 246 967 358 709 626

   a)

   246
   626
   (484) (123)
   (97)
   718   709   421
   358   967
   (242)
   Digits add to 16   Odd

   b)

   Less than 900
   421
   626
   718   246   709
   (628)
   358   967
   Even   (531)   (2000)
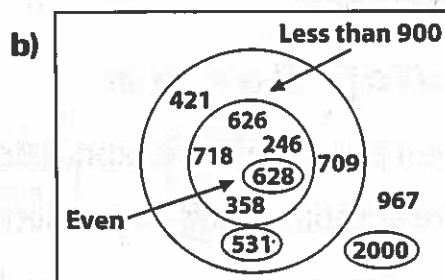
2. Use a coloured pencil to write one more number in each part of the Venn diagrams in question 1.

3. a) Sort these numbers in the Carroll diagram.

   56 101 77 84 50 126
   91 105

   b) Use a coloured pencil to write another number in each box in the Carroll diagram.

 | | Even | Odd |
   |---|---|---|
   | Multiples of 7 | 56 84 | 77 91 |
   | | 126 (28) | 105 (35) |
   | Not Multiples of 7 | 50 (16) | 101 (23) |

4. Elmo travels to Sweden every three years.
   Sven visits Sweden every four years.
   Both men went to Sweden in 2006.
   Use a Venn diagram to find the year
   in which both men will visit Sweden again.

   2009
   2012   (2018)   2010
   2015   2014
   Elmo   Sven
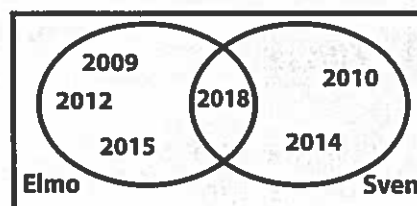
   Both men will visit Sweden in 2018.

Choose two attributes. Label the circles.
Sort these numbers in the Venn diagram.
1514 2658 947 352 685 4109

   4109
   947   1514
   352
   685   2658
   Has 3 digits   Even

Estimating Sums

At Home At School
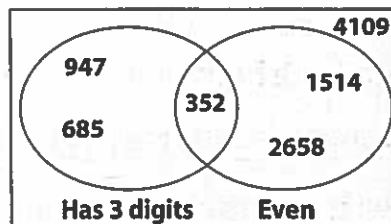
Quick Review

When a question asks "about how many," you can estimate.

Here are some ways to estimate the sum of 294 + 351.

➤ Write each number to the closest 100.
294 is closest to 300.
351 is closest to 400.
300 + 400 = 700
So, 294 + 351 is about 700.

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

For a closer 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.
   a) 198 + 389

   Estimate: **600 or 590**

   d) 79 + 272

   Estimate: **350**

   b) 119 + 408

   Estimate: **500 or 530**

   e) 516 + 482

   Estimate: **1000**

   c) 640 + 192

   Estimate: **800 or 830**

   f) 291 + 291

   Estimate: **600 or 580**

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

   His estimate is low. He probably used front-end estimation, so each
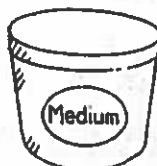
   number is rounded down and the estimate is low.

1. About how many beads would you have if you bought these sizes:
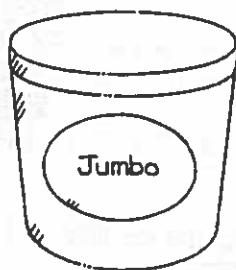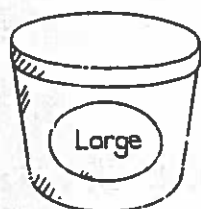
| 149 jumbo beads | 285 large beads | 399 medium beads | 640 small beads |

   a) small and large? **900 or 930**   b) medium and jumbo? **500 or 550**

   c) medium and large? **700 or 690**   d) jumbo and small? **700 or 790**

2. The toy shop sold 117 wind-up cars and 289 battery-operated cars in one week. About how many cars did it sell? **400 or 410**

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? **1000 or 930**

   b) Did Yolanda reach her goal? Explain.

   Sample Answer: No. I rounded up to estimate: $400 + 600 = 1000$

   So, I know the actual number is less than 1000.

4. Last summer, 227 children signed up for T-ball and 139 signed up for baseball. About how many children signed up altogether? **300 or 370**

Stretch Your Thinking

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

Sample Answer: 467 and 511; 670 and 320; 249 and 774

Using Mental Math to Ad

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 = 467
467 – 3 = 464
So, 267 + 197 = 464

200 is a friendly number because it is easy to add 200.

➤ Count on to add: 271 + 580
Add 271 and 500. 271 + 500 = 771
Count on by 10s eight times.
771, 781, 791, 801, 811, 821, 831, 841, 851
So, 271 + 580 = 851

➤ Use mental math to add: 415 + 342
Use the strategy of "adding on" from left to right.
Add on hundreds, then tens, and then ones.
Think: 415 + 300 + 40 + 2
Count on 3 hundreds: 415, 515, 615, 715
Count on 4 tens: 715, 725, 735, 745, 755
Then add 2: 755 + 2 = 757
So, 415 + 342 = 757

Try These

1. Use mental math to add.

   a) 262 + 345 = __607__   b) 497 + 222 = __719__   c) 370 + 163 = __533__

   d) 399 + 544 = __943__   e) 262 + 290 = __552__   f) 196 + 341 = __537__

2. Becky gathered 316 clams and Charlie gathered 286.

   How many clams did they gather in all? Use mental math to find out. __602__

Use mental math.

1. Add.

   a) $690 + 284 =$ ___974___

   b) $2131 + 3468 =$ **5599**

   c) $352 + 213 =$ ___565___

   d) $229 + 493 =$ ___722___

   For which problems did you make a "friendly" number? __a and d__

2. Look at these containers.
   If you bought the following groups
   of animals, how many toy animals
   would you have?
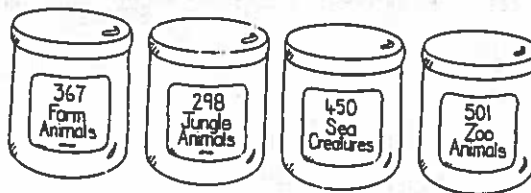
   a) farm animals and zoo animals ___868___

   b) sea creatures and jungle animals ___748___

   c) zoo animals and jungle animals ___799___

3. Ridgetown has a population of 8317 people.
   Mayberry has a population of 1291.

   How many people live in the two towns? ___9608___

4. The cafeteria sold 123 cartons of chocolate milk and 204 cartons of
   white milk. How many cartons of milk were sold? ___327___

Stretch Your Thinking

Use mental math to add: $453 + 197 + 205 =$ ___855___

Describe the strategy you used. __I made two friendly numbers.__

__I added 3 to 197 to get 200 and subtracted 5 from 205 to get 200.__

__Then I added $453 + 200 + 200 = 853$.__

__Next, I subtracted 3 and added 5: $853 - 3 = 850; 850 + 5 = 855$__

Adding 3-Digit Numbers

At Home At School

Quick Review

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

➤ Add from right to left.

$$\begin{array}{r} 276 \\ + \quad 397 \\ \hline 500 \\ 160 \\ 13 \\ \hline 673 \end{array}$$

Add the hundreds: 500
Add the tens: 160
Add the ones: 13
Add the sums: 673

➤ Add from right to left.

Add the ones: 13 ones
Regroup 13 ones as
1 ten and 3 ones.

$$\begin{array}{r} {\scriptstyle 1} \\ 276 \\ + 397 \\ \hline 3 \end{array}$$

Add the tens: 17 tens
Regroup 17 tens as
1 hundred and 7 tens.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 276 \\ + 397 \\ \hline 73 \end{array}$$

Add the hundreds:
6 hundreds

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 276 \\ + 397 \\ \hline 673 \end{array}$$

Geraldo has 673 cards in all.

Try These

1. Add.

a) $\begin{array}{r} 295 \\ + 104 \\ \hline \mathbf{399} \end{array}$

b) $\begin{array}{r} 327 \\ + 415 \\ \hline \mathbf{742} \end{array}$

c) $\begin{array}{r} 299 \\ + 463 \\ \hline \mathbf{762} \end{array}$

d) $\begin{array}{r} 508 \\ + 419 \\ \hline \mathbf{927} \end{array}$

e) $\begin{array}{r} 285 \\ + \ 79 \\ \hline \mathbf{364} \end{array}$

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? __**611 people**__

22

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.

a) 738	b) 637	ⓒ 109	d) 718	e) 367
+ 191	+ 439	+ 488	+ 237	+ 662
929	**1076**	**597**	**955**	**1029**

f) 482	ⓖ 234	ⓗ 689	i) 651	ⓙ 318
+ 519	+ 410	+ 130	+ 259	+ 491
1001	**644**	**819**	**910**	**809**

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.

a) 418	ⓑ 526	c) 381	d) 108	ⓔ 397
+ 231	+ 437	+ 294	+ 592	+ 459
649	**963**	**675**	**700**	**856**

f) 362	ⓖ 583	ⓗ 435	ⓘ 339	ⓙ 282
+ 282	+ 199	+ 428	+ 382	+ 531
644	**782**	**863**	**721**	**813**

3. Add: 419 + 386

Explain your strategy.

<u>**Sample Answer: I added from right to left. 419 + 386 = 805**</u>

4. What is the greatest 3-digit number you can add to 457 without having to

regroup in any place? <u>**542**</u>

Stretch Your Thinking ·

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

Find two pairs of numbers. <u>**Sample Answer: 426 and 427; 365 and 488**</u>

Adding 4-Digit Numbers

Quick Review

➤ 1756 + 4828
Use column addition.

	1000s	100s	10s	1s
1	1	7	5	6
+4	4	8	2	8
	5	15	7	14
	6	5	7	14
	6	5	8	4

15 hundreds is 1 thousand 5 hundreds
14 ones is 1 ten 4 ones

➤ 1756 + 2469
Add from right to left.

Add the ones. Regroup.	Add the tens. Regroup.	Add the hundreds. Regroup.	Add the thousands.
1 1756 + 2469 5	11 1756 + 2469 25	111 1756 + 2469 225	111 1756 + 2469 4225

Estimate to check that the sum is reasonable.
1756 is close to 2000. 2469 is
close to 2000. 2000 + 2000 = 4000

4225 is close to 4000.
So, the sum is reasonable.

Try These

1. Find each sum. Estimate to check.

a) 5558
  + 1343
   6901

b) 3047
  + 2828
   5875

c) 4189
  + 3673
   7862

d) 1847
  + 5684
   7531

2. Estimate each sum.

a) 3276 + 4192
   Estimate: **7000**

b) 1258 + 3769
   Estimate: **5000**

c) 2672 + 3409
   Estimate: **6000**

1. Play this game with a partner.
   You will need:
   1 number cube labelled 1 to 6

   ➤ 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.

Sample Answers

Player A

```
  3 6 1 3          5 2 4 2
+ 2 5 1 4        + 3 1 6 1
  6 1 2 7          8 4 0 3


  4 5 6 2          4 6 6 2
+ 3 4 5 1        + 3 1 5 2
  8 0 1 3          7 8 1 4


  6 5 5 3          4 3 6 1
+ 3 4 6 2        + 3 5 1 2
10 0 1 5          7 8 7 3
```

Player B

```
  1 6 3 3          5 4 2 2
+ 2 5 4 1        + 6 1 3 1
  4 1 7 4        11 5 5 3


  6 4 5 2          6 4 6 2
+ 3 1 5 4        + 3 1 5 2
  9 6 0 6          9 6 1 4


  5 6 3 5          6 3 4 1
+ 3 4 2 6        + 3 1 5 2
  9 0 6 1          9 4 9 3
```

Stretch Your Thinking

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

Sample Answer: 2642 + 1947; 3218 + 1371

Estimating Differences

Quick Review

Here are some strategies for estimating differences.

➤ Estimate: 513 – 289
Write each number
to the nearest 100
and subtract.
500 – 300 = 200
So, 513 – 289 is about 200.

> To get a closer estimate, write only one number to the closest 100.
> 513 – 300 = 213.
> So, 513 – 289 is about 213.

➤ Estimate: 4592 – 2369
Use front-end estimation.
4592 → 4000
2369 → 2000
4000 – 2000 = 2000
So, 4592 – 2369 is about 2000.

> Use the digits in the thousands place. Replace the other digits with zeros.

Try These

1. Estimate each difference.

a) 749 – 263   b) 504 – 327   c) 988 – 214

Estimate: **400 or 449**   Estimate: **200 or 204**   Estimate: **800 or 788**

d) 4580 – 1235   e) 677 – 48   f) 6896 – 1583

Estimate: **3000 or 3580**   Estimate: **630 or 627**   Estimate: **5000 or 5896**

2. Natalie estimated 584 – 126 as 400. Is her estimate high or low? Explain.

Sample Answer: Her estimate is low. If I write each number to the nearest hundred to estimate, I get 600 – 100 = 500. If I write only 126 to the nearest hundred to get a closer estimate, I get 584 – 100 = 484. If I subtract 584 – 126, I get 458. Each of these answers is greater than 400.

1. Use the data in the chart to estimate each difference.

School Lunches Served

Day	Number Served
Monday	286
Tuesday	327
Wednesday	489
Thursday	417
Friday	648

a) About how many more lunches were served on Friday than on Monday? **300 or 348**

b) About how many more lunches were served on Thursday than on Tuesday? **100 or 117**

c) About how many more lunches were served on Wednesday than on Tuesday? **200 or 189**

2. Laleh estimated the difference of 7654 and 4111 as 4000, and Sam estimated the difference as 3500.

   a) How might Laleh have estimated?

   8000 – 4000 = 4000

   b) How might Sam have estimated?

   7500 – 4000 = 3500

   c) Whose estimate is better? Explain.

   Sam's estimate is better. It is closer to the actual difference.

Stretch Your Thinking

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

Sample Answer: 674 and 148

Using Mental Math to Subtract

At Home
At School

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.
Add 2 to 719 to make 721.
721 – 400 = 321
So, 719 – 398 = 321

Subtract: 437 – 103
Subtract 100 instead of 103.
437 – 100 = 337
Then subtract 3.
337 – 3 = 334
So, 437 – 103 = 334

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

Try These

1. Use mental math to subtract.

a) 427 – 299 = __128__
b) 625 – 495 = __130__
c) 586 – 397 = __189__

d) 256 – 101 = __155__
e) 748 – 403 = __345__
f) 462 – 202 = __260__

g) 4272 – 2150 = __2122__
h) 7758 – 3547 = __4211__
i) 6894 – 1673 = __5221__

2. Laslo travelled 637 km on Saturday and 402 km on Sunday.
   How much farther did he travel on Saturday than on Sunday?
   Use mental math to find out. __235 km__

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. __231 hot dogs__

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

What did King Tut say
when he was scared?

543 − 260 = __283__ (B)   622 − 415 = __207__ (E)

894 − 517 = __377__ (N)   583 − 298 = __285__ (I)

499 − 354 = __145__ (M)   314 − 189 = __125__ (U)

532 − 220 = __312__ (T)   847 − 606 = __241__ (Y)

684 − 302 = __382__ (W)   717 − 402 = __315__ (Z)

536 − 199 = __337__ (C)   632 − 421 = __211__ (F)

947 − 624 = __323__ (L)   231 − 111 = __120__ (A)

I	W	A	N	T	M	Y	M	U	M	M	Y
285	382	120	377	312	145	241	145	125	145	145	241

Stretch Your Thinking

Describe two ways to find 4000 − 3894.   **Sample Answer**

   +100   +1   +1   +1   +1   +1   +1   = 106

(1) Count on: 3894, 3994, 3995, 3996, 3997, 3998, 3999, 4000

   So, 4000 − 3894 = 106

(2) Use a friendly number. Subtract 3900 instead of 3894. 4000 − 3900 = 100

   Then add 6: 100 + 6 = 106; so, 4000 − 3894 = 106

Subtracting 3-Digit Numbers

Quick Review

There are 300 seats in the theatre. One hundred eighty-four seats are on the main floor. The rest are in the balcony.
To find how many seats are in the balcony, subtract: 300 – 184

➤ You can use place value to subtract.
You cannot take 4 ones from 0 ones.
There are no tens to regroup.
Regroup 1 hundred as 10 tens.
Regroup 1 ten as 10 ones.
Subtract the ones.
Subtract the tens.
Subtract the hundreds.

$$\begin{array}{r} {}^{9}\\ {}^{2\ \cancel{10}\ 10}\\ \cancel{3}\cancel{0}\cancel{0}\\ -\ 184\\ \hline \end{array}$$

$$\begin{array}{r} {}^{9}\\ {}^{2\ \cancel{10}\ 10}\\ \cancel{3}\cancel{0}\cancel{0}\\ -\ 184\\ \hline 116 \end{array}$$

➤ You can use mental math to subtract.
Count on from 184 to 300.

184 $\nearrow$ 284 $\nearrow$ 294 $\nearrow$ 300

+100   +10   +6   =   116

You can check by adding.
Add: 184 + 116 = 300

Try These

1. Subtract.

a) $\begin{array}{r} 465 \\ -213 \\ \hline 252 \end{array}$ b) $\begin{array}{r} 786 \\ -229 \\ \hline 557 \end{array}$ c) $\begin{array}{r} 574 \\ -197 \\ \hline 377 \end{array}$ d) $\begin{array}{r} 600 \\ -211 \\ \hline 389 \end{array}$ e) $\begin{array}{r} 238 \\ -79 \\ \hline 159 \end{array}$

2. Find the difference. Use mental math.

a) 400 – 174 = __226__   b) 500 – 189 = __311__   c) 347 – 215 = __132__

d) 701 – 500 = __201__   e) 428 – 299 = __129__   f) 152 – 107 = __45__

1. Subtract. Check your answers.

   a)
   ```
     836
   - 451
     385
   ```
   Check:
   ```
     451
   + 385
     836
   ```

   b)
   ```
     726
   - 538
     188
   ```
   Check:
   ```
     538
   + 188
     726
   ```

   c)
   ```
     736
   - 528
     208
   ```
   Check:
   ```
     528
   + 208
     736
   ```

2. Use mental math to find each difference.

   a) 400 – 263 = __137__   b) 501 – 248 = __253__   c) 450 – 231 = __219__

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

   a)
   ```
     591
   - 375
   ```
   about 200
   216

   b)
   ```
     436
   - 168
   ```
   about 200
   268

   c)
   ```
     624
   - 235
   ```
   about 400

   d)
   ```
     716
   - 371
   ```
   about 300

   e)
   ```
     327
   -  79
   ```
   about 250
   248

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?
   __173 cans__

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?
   __145 books__

Stretch Your Thinking

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

__Sample Answer: 846 – 517; 660 – 331__

Subtracting 4-Digit Numbers

At Home At School

Quick Review

Subtract: 2053 − 997

You can use place value to subtract from right to left.

Regroup 1 ten as 10 ones. Subtract the ones.	Regroup 1 thousand as 10 hundreds. Regroup 1 hundred as 10 tens.	Subtract the tens. Subtract the hundreds. Subtract the thousands.

$$\begin{array}{r} {\scriptstyle 4\,13} \\ 205\cancel{3} \\ -\ 997 \\ \hline 6 \end{array}$$

$$\begin{array}{r} {\scriptstyle 9\ 14} \\ {\scriptstyle 1\ 10\ 4\ 13} \\ \cancel{2053} \\ -\ 997 \\ \hline 6 \end{array}$$

$$\begin{array}{r} {\scriptstyle 9\ 14} \\ {\scriptstyle 1\ 10\ 4\ 13} \\ \cancel{2053} \\ -\ 997 \\ \hline 1056 \end{array}$$

Check.

➤ By adding:

$$\begin{array}{r} 997 \\ +\ 1056 \\ \hline 2053 \end{array}$$

The sum should be the number you started with.

➤ By estimating:

2000 − 1000 = 1000

1000 is close to 1056.

So, the answer is reasonable.

Try These

1. Subtract.

a)
$$\begin{array}{r} 4532 \\ -\ 2121 \\ \hline \mathbf{2411} \end{array}$$

b)
$$\begin{array}{r} 5726 \\ -\ 248 \\ \hline \mathbf{5478} \end{array}$$

c)
$$\begin{array}{r} 7243 \\ -\ 5685 \\ \hline \mathbf{1558} \end{array}$$

d)
$$\begin{array}{r} 4029 \\ -\ 388 \\ \hline \mathbf{3641} \end{array}$$

2. Subtract. Check your answer.

a)
$$\begin{array}{r} 9354 \\ -\ 3287 \\ \hline \mathbf{6067} \end{array}$$

Check:
$$\begin{array}{r} \mathbf{3287} \\ +\ \mathbf{6067} \\ \hline \mathbf{9354} \end{array}$$

b)
$$\begin{array}{r} 7600 \\ -\ 1452 \\ \hline \mathbf{6148} \end{array}$$

Check:
$$\begin{array}{r} \mathbf{1452} \\ +\ \mathbf{6148} \\ \hline \mathbf{7600} \end{array}$$

1. Estimate. Then subtract.

   a)   3059
       $-$ 2298
       761

   b)   5138
       $-$ 4479
       659

   c)   8209
       $-$ 5919
       2290

   d)   5439
       $-$ 3216
       2223

   Estimate: __1000__   Estimate: __1000__   Estimate: __2000__   Estimate: __2000__

2. Manjit and Irene like to collect acorns.
   Manjit collected 1286 acorns and Irene collected 898.
   How many more acorns did Manjit collect than Irene? __388__

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 8 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.

Sample Answer: 1089 – 663; 1200 – 774

Solving Addition and Subtraction Problems

At Home
At School

Quick Review

Jakob delivered 2472 flyers in March, 3854 in April, and 1962 in May.
How many flyers did Jakob deliver in all?

➤ Add: 2472 + 3854 + 1962

$$
\begin{array}{r}
{}^{2\ 1} \\
2472 \\
3854 \\
+\ 1962 \\
\hline
8288
\end{array}
$$

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

Jakob delivered 8288 flyers.

Jakob was paid $165 for his work.
He bought a pair of skates for $119.
Later, he bought a hockey stick for $18.
How much money did Jakob have left?

➤ Subtract:
$$
\begin{array}{r}
{}^{5\ 15} \\
1\cancel{6}5 \\
-\ 119 \\
\hline
46
\end{array}
$$

Then subtract 18 from the result:
$$
\begin{array}{r}
{}^{3\ 16} \\
\cancel{46} \\
-\ 18 \\
\hline
28
\end{array}
$$

Jacob has $28 left.

Try These

1. Add.

a)
$$
\begin{array}{r}
4723 \\
6415 \\
+\ 3027 \\
\hline
14\ 165
\end{array}
$$

b)
$$
\begin{array}{r}
8962 \\
3471 \\
+\ 536 \\
\hline
12\ 969
\end{array}
$$

c)
$$
\begin{array}{r}
1357 \\
2468 \\
+\ 2389 \\
\hline
6214
\end{array}
$$

d)
$$
\begin{array}{r}
4572 \\
3002 \\
+\ 5679 \\
\hline
13\ 253
\end{array}
$$

2. Estimate to check each answer in question 1. Show your work.

a) $\underline{5000 + 6000 + 3000 = 14\ 000}$ b) $\underline{9000 + 3000 + 1000 = 13\ 000}$

c) $\underline{1000 + 2000 + 2000 = 5000}$ d) $\underline{5000 + 3000 + 6000 = 14\ 000}$

1. Maddy had $1467 in her bank account.
   She withdrew $247 one week and $135 the next week.
   How much money did Maddy have left in her account?

   Maddy had $1085 left in her bank account.

2. Play this game with a partner.
   You will need a number cube labelled 1 to 6.

   ➤ Take turns to roll the number cube.
     On each roll, both players record the digit rolled in one of the boxes in
     the first addition grid.
   ➤ After 12 rolls, add.
     The player with the greater sum wins.
   ➤ Repeat with the other grids.

   Player A   **Player B**

   Stretch Your Thinking . . . .

   The sum of three 4-digit numbers is 5638.

   What might the numbers be? **Sample Answer: 1250, 2300, 2088**