

Representing Numbers

Goal

Represent numbers using numerals, number words, models, and drawings.

- Ashrit Furman has set 78 official Guinness world records.
 - Tell how you would model 78 using base ten blocks. Use 7 ten blocks and 8 ones blocks.

 - Write 78 as 7 tens 8 ones.
 - Write 78 in expanded form.
70 + 8
 - Write 78 using number words.
seventy-eight

At-Home Help

Numbers can be represented in many ways. For example, 52 can be represented using

- a **model**, such as base ten blocks:



- numerals:** 52
- numerals in **expanded form:** 50 + 2
- numerals and words: 5 tens 2 ones
- a number word: fifty-two

- Here are some of Ashrit's records. In the box below, find another way to represent the number in each record. Write the letter beside the record.

hand clapping
50 hours S

yodelling
27 hours Y

somersaulting
19 kilometres I

brick carrying
100 kilometres T

balancing milk
bottle on head
98 kilometres X

backward
unicycling
85 kilometres W

pogostick
jumping
37 kilometres T

underwater
juggling
49 minutes O

Y 2 tens 7 ones	W 80 + 5	I nineteen	X 90 + 8
S 5 tens	T 30 + 7	O forty-nine	T one hundred

Read down both columns to find the number of glasses

Ashrit balanced on his chin. sixty-two

Renaming Numbers

Goal

Represent and rename 3-digit numbers with numerals and words, models, and drawings.

1. Find each missing number.

a) $643 =$

5 hundreds 14 tens 3 ones

b) $497 =$

3 hundreds 19 tens 7 ones

c) $705 =$

6 hundreds 10 tens 5 ones

d) $264 =$

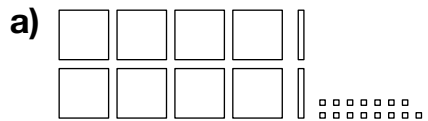
2 hundreds 5 tens 14 ones

e) $391 =$

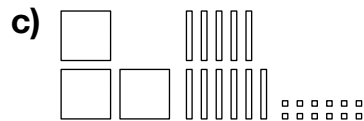
3 hundreds 8 tens 11 ones

f) $875 = 7$ hundreds 16 tens 15 ones

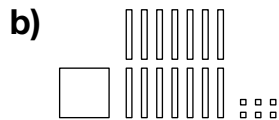
2. Write the numeral for each.



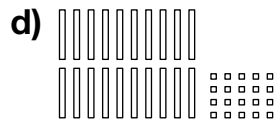
835



422



246

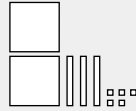


220

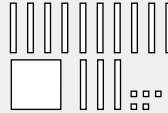
At-Home Help

Regrouping is showing the same number in a different way.

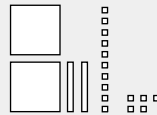
For example, 235



can be regrouped as



or as



Place-Value Patterns

Goal

Describe how the digits of numbers change in place-value patterns.

1. a) Here are 5 adding and subtracting patterns that can be done on a calculator.

Each pattern begins with a start number and a rule at the top and goes down the column. But each pattern has 1 or 2 errors in it. When you find an error, shade in the box.

Start number:	78	253	46	911	9
Rule:	+ 10	- 10	+ 100	- 100	+ 9
	80	243	146	811	10
	98	233	246	711	27
	108	220	346	601	36
	118	213	446	511	45
	128	203	564	411	54
	138	193	646	311	63
	148	185	746	210	72
	158	173	846	111	81
	160	163	946	11	100

At-Home Help

Adding or subtracting a number, for example 10, over and over again to create a pattern can be done using a calculator. Most calculators have a constant feature for addition or subtraction. After pressing $+$ or $-$ followed by a number, pressing $=$ over and over again will repeat the operation. It's quick and you can see the tens digit change by one each time.

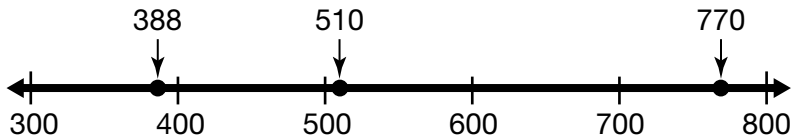
25 $+$ 10 $=$ $=$ $=$ $=$ $=$ $=$
gives 35, 45, 55, 65, 75, 85.

- b) What letter of the alphabet do the shaded-in boxes look like? X

Rounding to Estimate Numbers

Goal Round 3-digit numbers.

1. Use the number line to help you round to the nearest hundred.



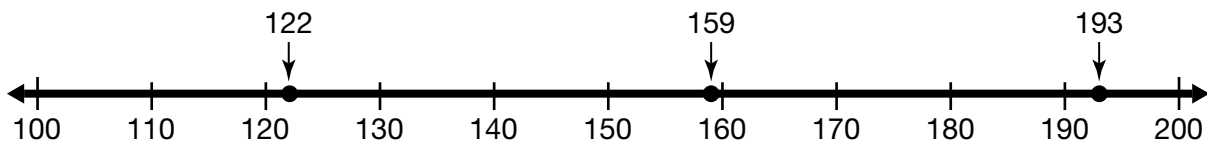
a) 388 rounded to the nearest hundred is 400.

b) 510 rounded to the nearest hundred is 500.

c) 770 rounded to the nearest hundred is 800.

d) 492 rounded to the nearest hundred is 500.

2. Use the number line to help you round to the nearest ten.



a) 122 rounded to the nearest ten is 120.

b) 159 rounded to the nearest ten is 160.

c) 193 rounded to the nearest ten is 190.

d) 144 rounded to the nearest ten is 140.

3. Round each number to the nearest hundred.

a) 569 600 b) 117 100 c) 651 700 d) 315 300

4. Round each number to the nearest ten.

a) 822 820 b) 407 410 c) 987 990 d) 516 520

At-Home Help

There are times when it is useful to use approximate numbers. When numbers are **rounded**, you get approximate numbers. To round numbers to the nearest ten or hundred, find the multiple of ten or hundred closest to the number.

246 rounded to the nearest ten is 250.

246 rounded to the nearest hundred is 200.

Comparing and Ordering

Goal

Compare and order whole numbers.

1. Use each of the digits **2 4 6** once to make

a) the greatest number possible 642

b) the least number possible 246

2. Use each of the digits **3 5 7** once to make

a) the greatest number possible 753

b) the least number possible 357

3. Write the 4 numbers in your answers to Questions 1 and 2 in order from least to greatest.

246, 357, 642, 753

4. Kelly, Lindsay, Tracy, and Nicky were playing some board games.

- a) At the end of one game, the winner is the player with the most play money. Nicky had \$725, Tracy had \$525, Lindsay had \$555, and Kelly had \$705.

Write the amounts of money in order from least to greatest.

\$525, \$555, \$705, \$725

Who won the game? Nicky

- b) At the end of a game of matching tiles, the winner is the player with the highest score. Nicky had 86, Tracy had 320, Lindsay had 168, and Kelly had 386.

Write the scores in order from least to greatest.

86, 168, 320, 386

Who won the game? Kelly

At-Home Help

When comparing numbers, look at the digits in the numbers by place value from left to right. As soon as a greater digit is found, the rest of the digits to the right do not matter.

In 782 and 739, 7 hundreds is the same in both numbers. Moving right one place, 8 tens in 782 is greater than 3 tens in 739.

So 782 is greater than 739.

It does not matter that 9 ones in 739 is greater than 2 ones in 782.

In 623 and 98, 6 hundreds is greater than 0 hundreds.

So 623 is greater than 98.

Solve Problems Using Organized Lists

Goal Solve place-value problems using an organized list.

1. Parmjit has 8 base ten blocks. She has at least one of each type of block. The value of her blocks is between 400 and 600. What blocks could she have? Find all the possible answers using an organized list. For example:

At-Home Help

Making an organized list in the form of a chart is a good way to list possible answers.

Hundreds	Tens	Ones	Value	Does it work?
4	3	1	431	yes
4	2	2	422	yes
4	1	3	413	yes
5	2	1	521	yes
5	1	2	512	yes

Note: Parmjit has to have more than 3 hundreds because the greatest number she can make with 3 hundreds using at least one type of each block is 3 hundreds, 4 tens, 1 one = 341, which is not greater than 400. The most hundreds she can have is 5 hundreds because the number has to be less than 600.

2. Monty has at least one of each type of base ten block. He does not have more than 12 of any one type of block. The value of his blocks is 512. What blocks could he have? Find all the possible answers using an organized list. For example:

Hundreds	Tens	Ones	Value	Does it work?
5	1	2	512	yes
5	0	12	512	no, no tens
4	11	2	512	yes
4	10	12	512	yes

Note: Monty must have more than 3 hundreds because the greatest number he can make with 3 hundreds using no more than 12 of any one type of block is 3 hundreds, 12 tens, 12 ones = 432, which is not 512. The most hundreds he can have is 5 hundreds because the number is 512.

Ordinal Numbers

Goal

Use numbers to describe order.

1. Watson Rd. Elementary School held a run for charity. Here is information about 4 runners.

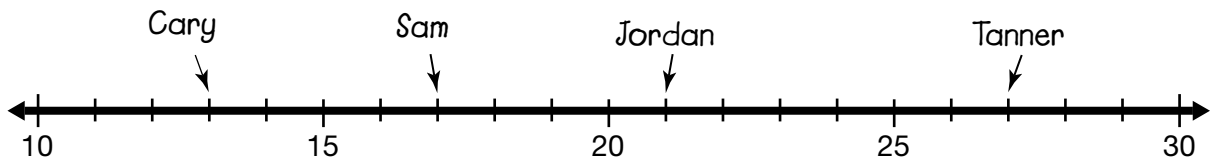
Sam was 5 places behind the 12th place runner.

Tanner was 10 places behind Sam.

Jordan was between the 20th and 25th place runners.

Cary was 8 places ahead of Jordan.

- a) Label the runners according to their positions on the number line.



- b) How many runners are ahead of Sam in the run? 16

- c) How far behind Cary is Sam? 4 places

- d) How far behind Jordan is Tanner? 6 places

2. a) Continue this pattern past 500.

341, 351, 361, 371, 381, 391, 401, 411, 421, 431, 441, 451, 461, 471, 481, 491, 501

- b) What is the 11th number in the pattern starting at 341? 441

- c) How many numbers came before the 11th number? 10

At-Home Help

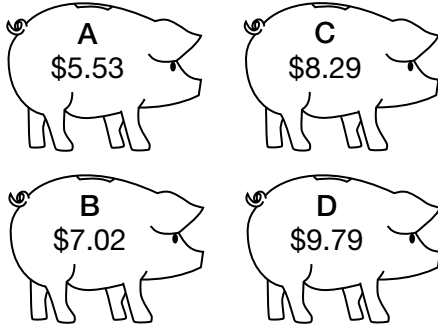
Ordinal numbers are used to describe the order of things. Numbers like 1st, 2nd, 3rd, 10th, and 45th are ordinal numbers.

Counting and Trading Coins

Goal

Count coins and explain how the coins relate to one another.

- Label each set of circled coins with the letter of the piggy bank that matches the amount.



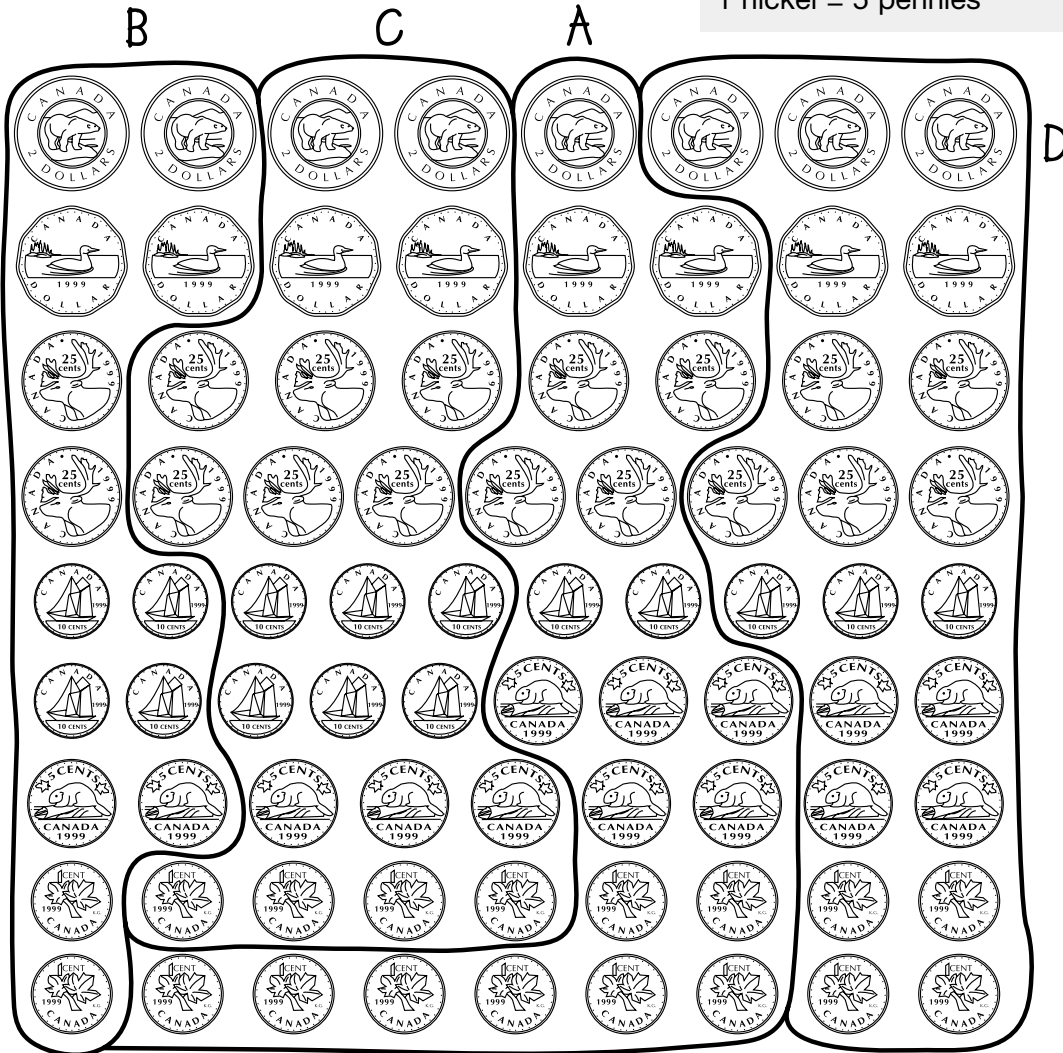
At-Home Help

When counting money, some regrouping is the same as place value regrouping.

- 1 loonie = 10 dimes
- 1 dime = 10 pennies

Some regrouping is different. For example,

- 1 toonie = 2 loonies
- 1 loonie = 4 quarters
- 1 quarter = 5 nickels
- 1 dime = 2 nickels
- 1 nickel = 5 pennies



Trading Bills

Goal

Explain the trades you can make with bills up to \$100.

- Tell how many of these bills you would need to buy each item.
Give 2 different combinations of bills.
Then circle the combination that uses fewer bills.

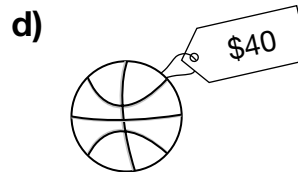
The first one is done for you.



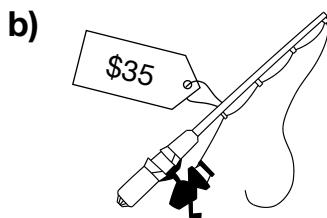
Answers will vary. For example:



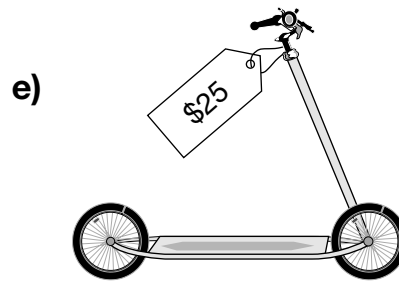
- 2 \$10
1 \$20



- 2 \$20
4 \$10



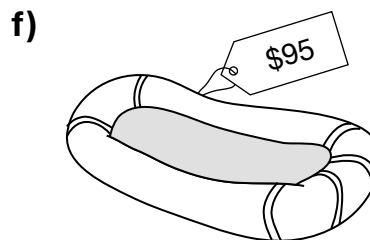
- 7 \$5
1 \$20, 1 \$10, and 1 \$5



- 5 \$5
1 \$20 and 1 \$5



- 9 \$10
4 \$20 and 1 \$10



- 9 \$10 and 1 \$5
4 \$20, 1 \$10, and 1 \$5

At-Home Help

There are many combinations of bills that make the same amount.

For example, to make \$75, you can use 15 \$5 bills or 3 \$20 bills, 1 \$10 bill, and 1 \$5 bill.

Test Yourself

Circle the correct answer.

- Which numeral can be represented by $40 + 6$?
A. 406 B. 64 C. 146 **D. 46**
- What is the number word for 72?
E. eighty-two G. twenty-seven
F. seventy-two H. seven hundred two
- Which is **not** another name for 506?
A. 4 hundreds 10 tens 16 ones C. 4 hundreds 9 tens 16 ones
B. 4 hundreds 10 tens 6 ones D. 3 hundreds 19 tens 16 ones
- What will the calculator show after pressing $81 + 10 = = =$?
E. 3 F. 91 G. 101 **H. 111**
- What is 728 rounded to the nearest hundred?
A. 100 B. 730 **C. 700** D. 800
- What is 356 rounded to the nearest ten?
E. 10 **F. 360** G. 350 H. 400
- What is the greatest number possible using each of the digits **3, 4, and 5**?
A. 345 B. 453 **C. 543** D. 534
- Kale finished 42nd in a competition. How many people finished ahead of Kale?
E. 41 F. 42 G. 100 H. 43
- What is the total amount of 1 toonie, 3 loonies, 4 quarters, 12 dimes, 12 pennies?
A. \$4.32 B. \$5.22 C. \$7.22 **D. \$7.32**
- Which is **not** the same value as \$50?
E. 4 \$10 bills, 2 \$5 bills **G. 2 \$20 bills, 1 \$10 bill, 2 \$5 bills**
F. 5 \$10 bills H. 1 \$20 bill, 1 \$10 bill, 4 \$5 bills