Grade 5
Envisions Math 2.0
2016 Version
Topic 1
Power Point Lesson

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PATTERNS WITH EXPONENTS AND POWERS OF 10

Lesson 1-1

Standard 5.NBT.A.2

WARM UP

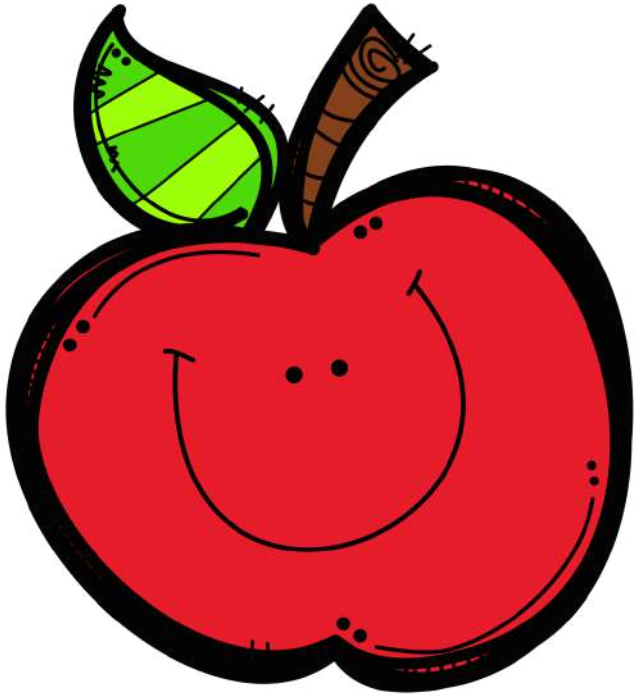
7 x 9

8 x 4

3 x 6

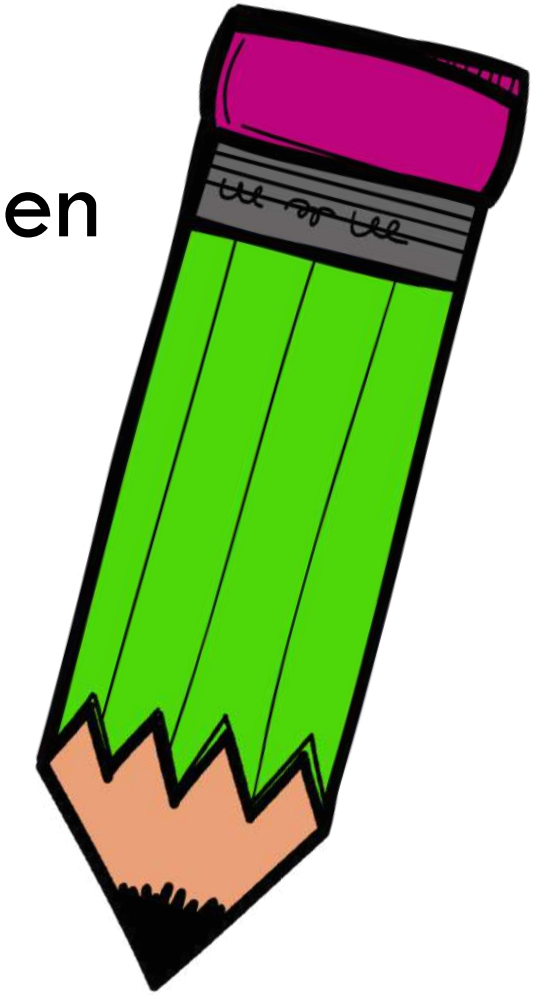
9 x 8

4 x 3



THINK AND WRITE

How many 10s are in 10,000,000? When might you use large numbers like this?

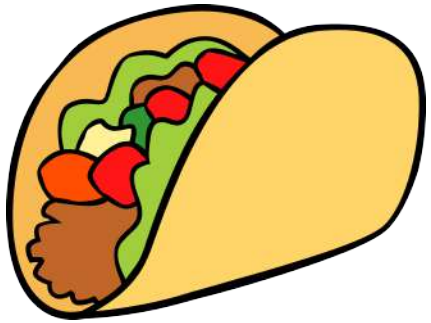


VOCABULARY

An exponent is the number that tells how many times a base number is used as a factor.

Example: 10,000 = 10 x 10 x 10 x 10 x 10 or 10^5

WRITING NUMBERS WITH EXPONENTS



Example: Taco Tico sells about 30,000 chicken tacos a month. How can you write that number using exponents?

A. First, identify the equation using a multiple of ten-

3 x 10,000

B. The number of zeros in the product is the same as the exponent. 3×10^4

C. Write the number being multiplied, which is 3. Then write the number of zeros in the exponent or the multiple of ten, which is 4. Your answer is 30,000.

EXPONENT PRACTICE!

4×10^3

7×10^6

9×10^4

3×10^7

6×10^5

MULTIPLYING BY MULTIPLES OF 10

7 x 100

7 x 10,000

7 x 100,000

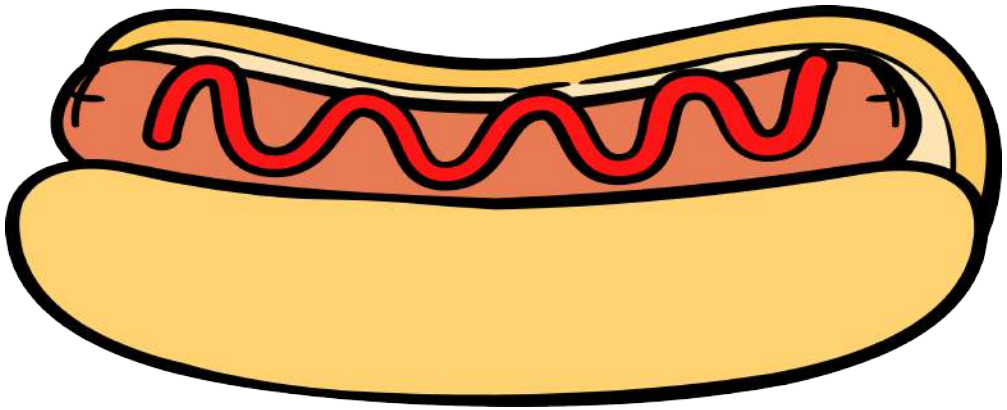
8 x 1,000

8 x 100,000

8 x 1,000,000

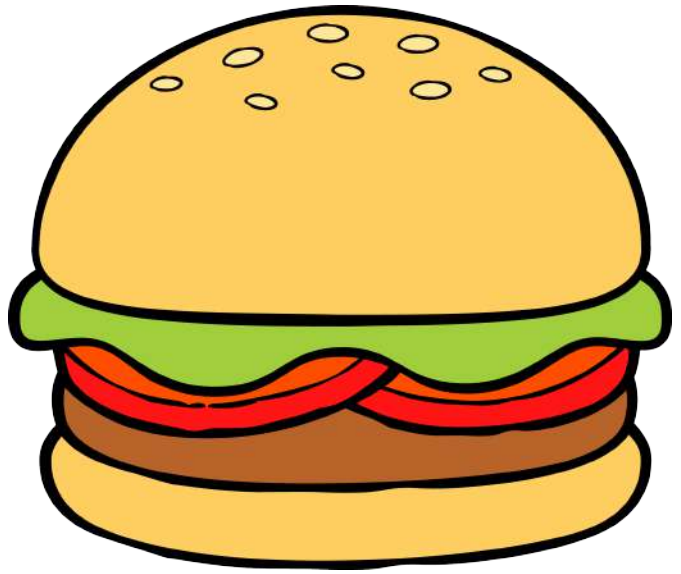
PROBLEM 1

Harry's Hot Dog Shack sold 4×10^3 hot dogs on Friday and 10^6 on Saturday. How many hot dogs did Harry's Hot Dog Shack sell altogether?



PROBLEM 2

Bob's Burgers sold 4×10^5 burgers. Bill's Burgers sold 3×10^7 burgers. Without solving, explain how you can find which store sold more burgers.



PROBLEM 3

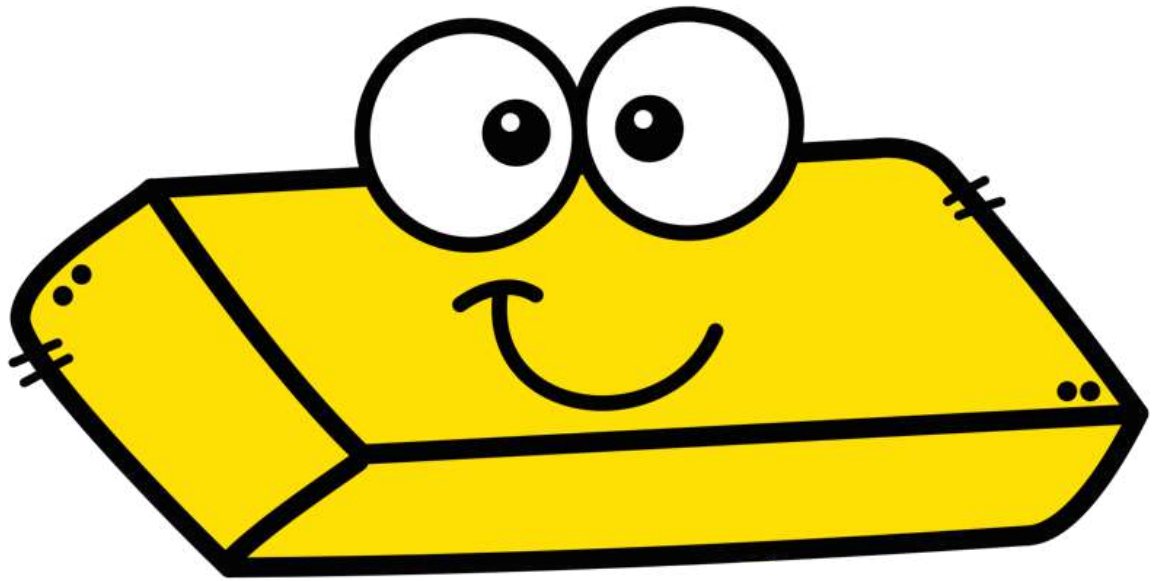
Choose all the equations that are true.

A. $3 \times 10^5 = 3 \times 100{,}000$

B. $3 \times 10^5 = 3 \times 10{,}000$

C. $3 \times 10^5 = 300{,}000$

D. $3 \times 10^5 = 30{,}000$



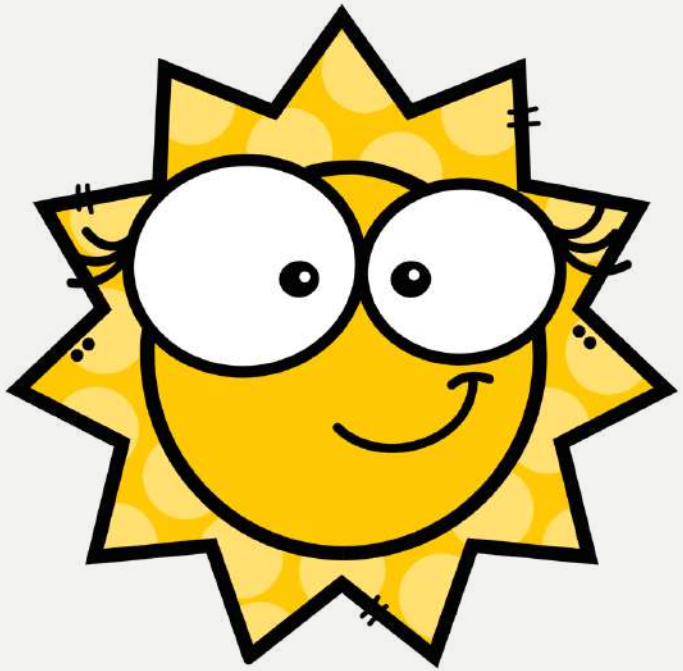
UNDERSTAND WHOLE NUMBER PLACE VALUE

LESSON 1-2

5.NBT.A.1

WARM UP

- 8×10^7
- 4×10^3
- 6×10^5
- 3×10^4
- 5×10^6



THINK AND WRITE

Why is place value important? How can understanding place value help you in life?

PLACE VALUE

MILLIONS				THOUSANDS				ONES		
hundred millions	ten millions	millions	,	hundred thousands	ten thousands	thousands	,	hundreds	tens	ones
7	4	5	,	3	0	9	,	2	8	1

Write the value of the 5 in the millions place.

Write the value of the 9 in the thousands place.

Write the value of the 3 in the hundred thousands place.

IMPORTANT VOCABULARY

45,628,703 (standard form)

- Expanded Form: You expand the number by writing the value of each digit.

40,000,000 + 5,000,000 + 600,000 + 20,000 + 8,000 + 700 + 10 + 3

Or

$(4 \times 10^7) + (5 \times 10^6) + (6 \times 10^5) + (2 \times 10^4) + (8 \times 10^3) + (7 \times 10^2) + 3$

- Word Form: writing the number as words. Say it and write it.

Forty-five million six hundred twenty-eight thousand seven hundred three

PLACE VALUE RELATIONSHIPS

Example: What is the relationship between the value of the two threes in the number 43,320,000?

A. First write the number in expanded form. That will show you what each digit is worth.

40,000,000 + 3,000,000 + 300,000 + 20,000

B. Now look at the value of the digits. 3,000,000 and 300,000.

What can you say about the relationship?

3,000,000 is 10 times as great as 300,000.

300,000 is 1/10 of 3,000,000.

PRACTICE!

165,500

Write this number in expanded form.

Write the values of the 5s.

$20{,}000 + 2{,}000 + 100 + 60 + 8$

Write the number in standard form.

What is the difference of the value of the 2s?

$(4 \times 10^5) + (3 \times 10^3)$

Write the number in standard form.

PROBLEM 1

There are about 8,800 Great White Sharks off the coast of Australia. Kelsey says that the value of the first 8 in the thousands place is 10 times the value of the second 8 in the hundreds place. Is she correct? Explain.

PROBLEM 2

The world population of bottlenose dolphins is estimated at six hundred thousand. Write this number in standard form.

DECIMALS TO THOUSANDTHS

Lesson 1-3
5.NBT.A.1, 5.NBT.A.3a

WARM UP

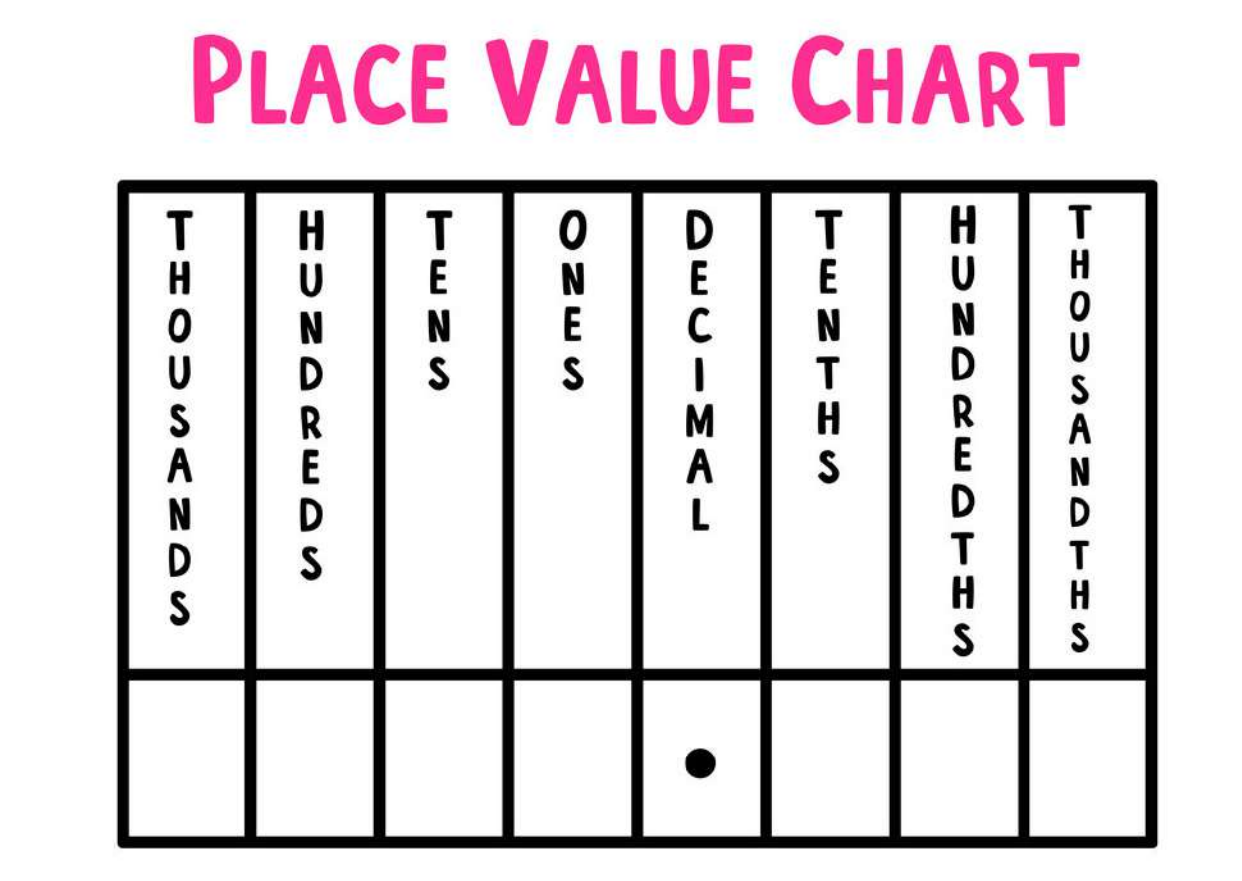
Write these numbers in expanded form.

78,915
322,846
145,301
67,189

THINK AND WRITE

When would you have to use numbers that would have decimals like 25.895?

DECIMAL PLACE VALUE



If a decimal is 0.7, it is seven tenths, or 7/10.

If a decimal is 0.07, it is seven hundredths, or 7/100.

If a decimal is 0.007, you would write it as 7/1000. It is seven thousandths.

WRITE FRACTIONS AS DECIMALS

- 8/10
- 3/10
- 5/100
- 48/100
- 57/100
- 142/1000
- 679/1000

WRITE DECIMALS AS FRACTIONS

- 0.18
- 0.9
- 0.74
- 0.985
- 0.008
- 0.023

PROBLEM 1

The tiger cub eats ten times as much as he ate last week. Last week he ate 0.08 kg. at each meal. What decimal shows the amount that he ate today?

PROBLEM 2

Tiny Tiger says that 84/100 is written as 0.084. Is Tiny Tiger correct? Explain.

Understand Decimal Place Value

Lesson 1-4

5.NBT.A.3a

Warm Up

Write these decimals as fractions.

0.3

0.985

0.046

0.78

0.001

Think and Write

Marco and Tyrel ran a race. Marco's time was 9.87 and Tyrel's time was 9.94. Using place value, explain who was faster and why.

Decimal Forms

You can write decimals in different forms.

0.675 (standard form)

Expanded form:

(6 x 1/10) + (7 x 1/100) + (5 x 1/1000)

Number Name/Word Form:

Six hundred seventy five thousandths

Equivalent Decimals

- Equivalent decimals name the same, or equal, amount.
- Example: What are two decimals equivalent to 2.6?

  2.60 or two and sixty hundredths

  2.600 or two and six hundred thousandths

Practice!

Write two decimals equivalent to the given decimal.

2.3

4.50

7.200

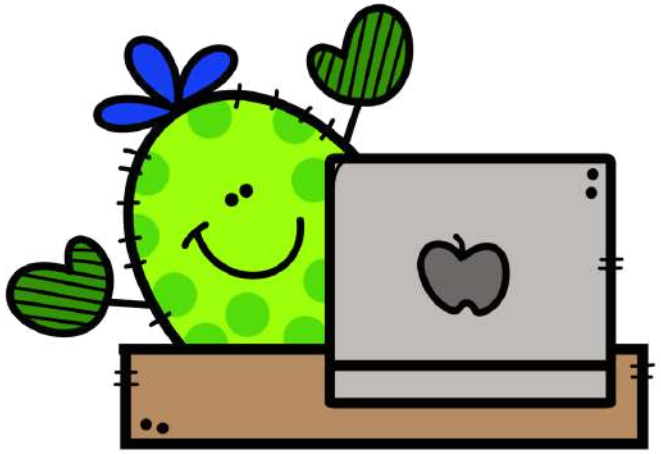
4.10

8.900

Problem 1

Write this number in standard form and word form.

$7 + (5 \times 1/10) + (2 \times 1/100) + (3 \times 1/1000)$



Problem 2

Cactus A is 7.3 feet tall. Cactus B is 7.300 feet tall. Justin says that both are the same height. Is he correct? Explain.

Problem 3

A scientist measures a cactus and writes its height in expanded form. This is what she writes:

(5 x 10) + 3 + (1 x 1/100)

Write two equivalent decimals.

COMPARE DECIMALS

LESSON 1-5

CCSS 5.NBT. A.3B

WARM UP

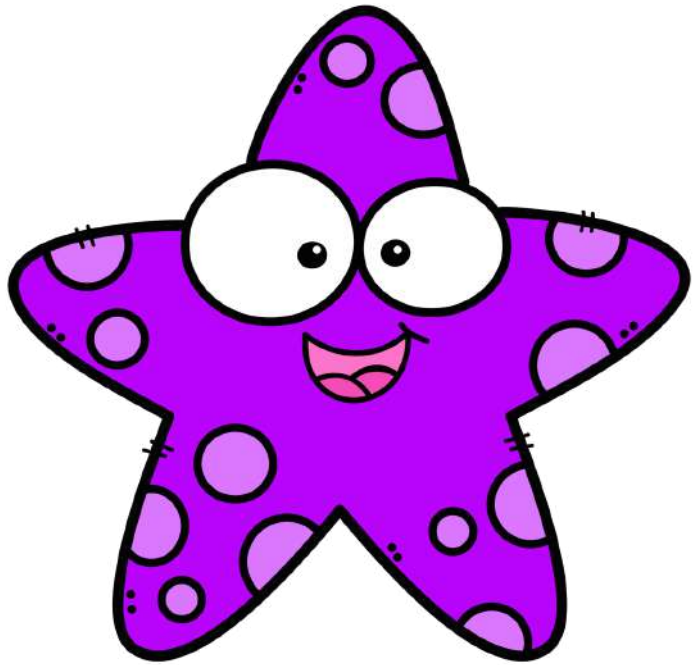
Write the decimal equivalent to the fraction.

4/100

32/1000

8/10

145/1000



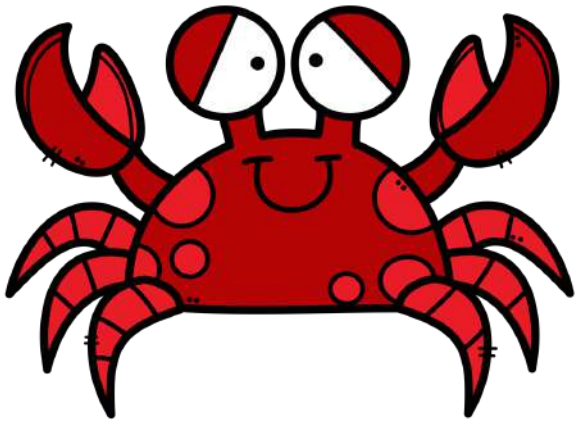
THINK AND WRITE

When would you have to compare decimals? Think of at least three times in everyday life where you may need this skill.

COMPARING DECIMALS

Crab A is 3.54 in. long. Crab B is 3.72 in. long. Crab C is 3.57 in. long. List the crabs in order from least to greatest.

Step 1: Line up the decimal points.



3.54

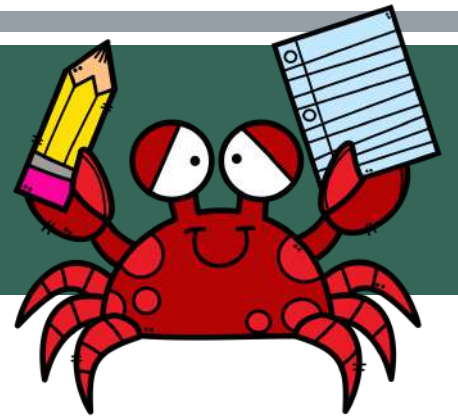
3.72

3.57

Step 2: Start at the left. Which digit is the largest?

All digits in the ones place are 3. The tenths place digits are 5, 7, and 5. The 7 is greater than the two fives.

COMPARING DECIMALS, PART 2



Now, compare places of the same value.

3.54

3.57

3.72

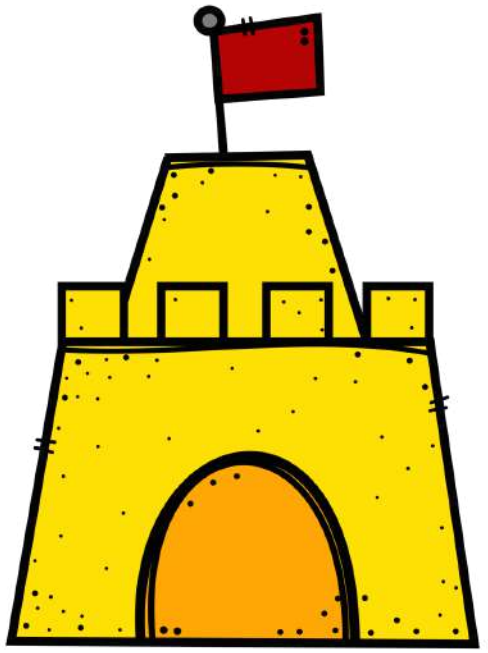
Finally, compare the digits in the next place over.

The four is less than the seven, so the decimals are now listed in order.

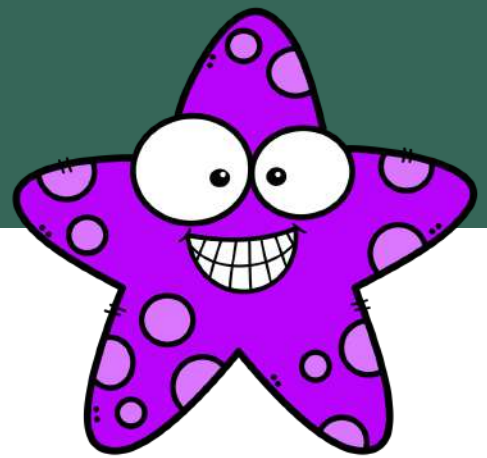
COMPARING DECIMALS

Use <, > and = to compare these decimals.

- 4.56 __ 4.52
- 3.954 ___ 3.962
- 0.530 ___ 0.53
- 1.34 ___ 1.348



PROBLEM 1



Starfish A is 5.689 in. long. Starfish B is 5.683 in. long. Starfish C is 5.679 in. long. Order these decimals from the least to the greatest.

PROBLEM 2

Frankie's surfboard is 7.892 ft. long. Choose all the decimals that are larger than the length of Frankie's surfboard.

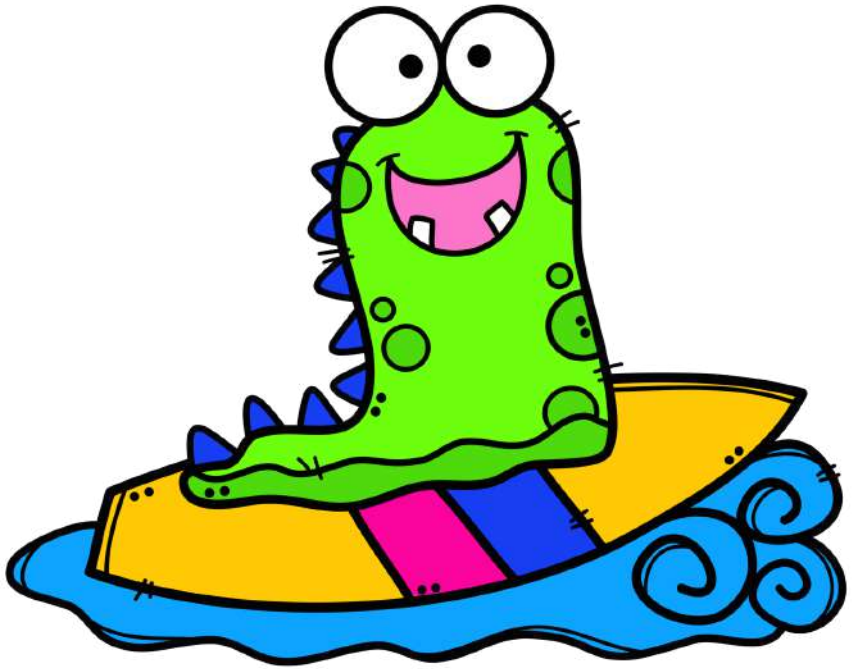
7.890

7.898

7.912

7.891

7.895



Round Decimals

LESSON 1-6

5.NBT.A.4

Warm Up

Use >, <, or = to compare.

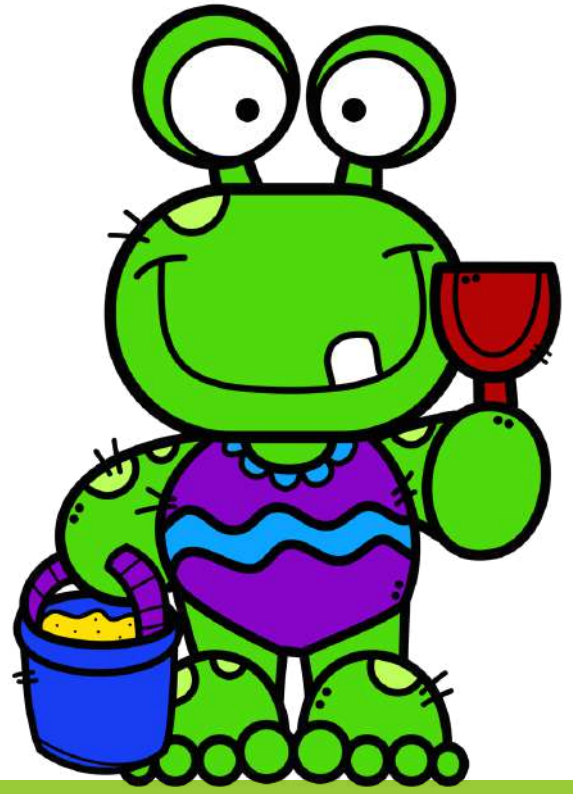
4.56 ___ 4.65

1.20 ___ 1.2

3.467___ 3.469

0.007 ___ 0.070

1.23 ___ 1.230



Think and Write

When would you have to round decimals in order to solve problems?

Rounding Decimals

1. Find the rounding place. Look to the digit to the RIGHT of the rounding place.

Round to the nearest tenth. 4.**5**6

2. If the digit is 5 or greater, add 1 to the rounding digit. If the digit is less than 5, leave the rounding digit alone.

Since 6 is greater than 5, add 1 to the five to make 4.6.

3. Drop the digits to the right of the rounding digit.

The rounded decimal is 4.6

Practice!

Round the decimals to the place of the underlined digit.

5.6<u>7</u>8

3.<u>4</u>2

<u>4</u>.691

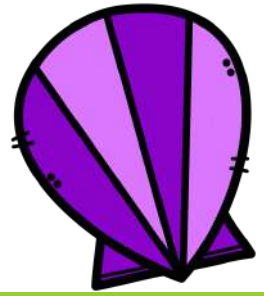
2.8<u>0</u>5

Problem 1

Round the lengths of the seashells to the nearest whole number.

A. 3.789 cm. _____

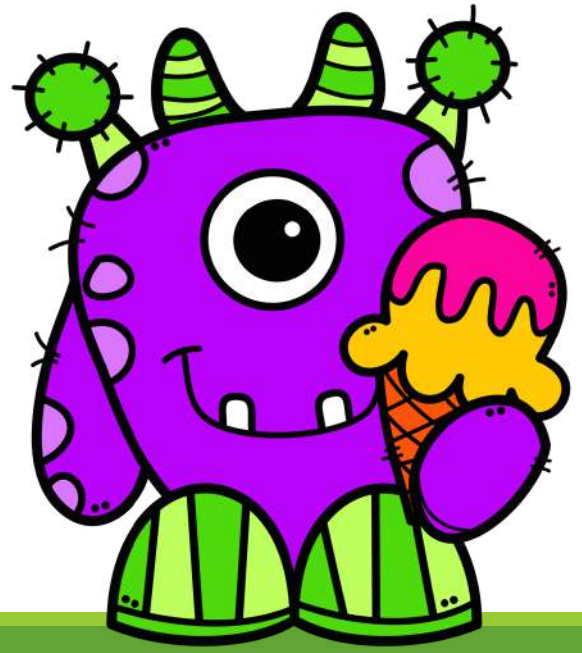
B. 2.146 cm. _____



C. 7.892 cm. _____

Problem 2

The length of Maggie's ice cream cone is 8.139 in. What is the length of her ice cream cone rounded to the nearest tenth?



MATH PRACTICES AND PROBLEM SOLVING: LOOK FOR AND USE STRUCTURE

Lesson 1-7

5.NBT.A.1

WARM UP

Order these decimals from greatest to least.

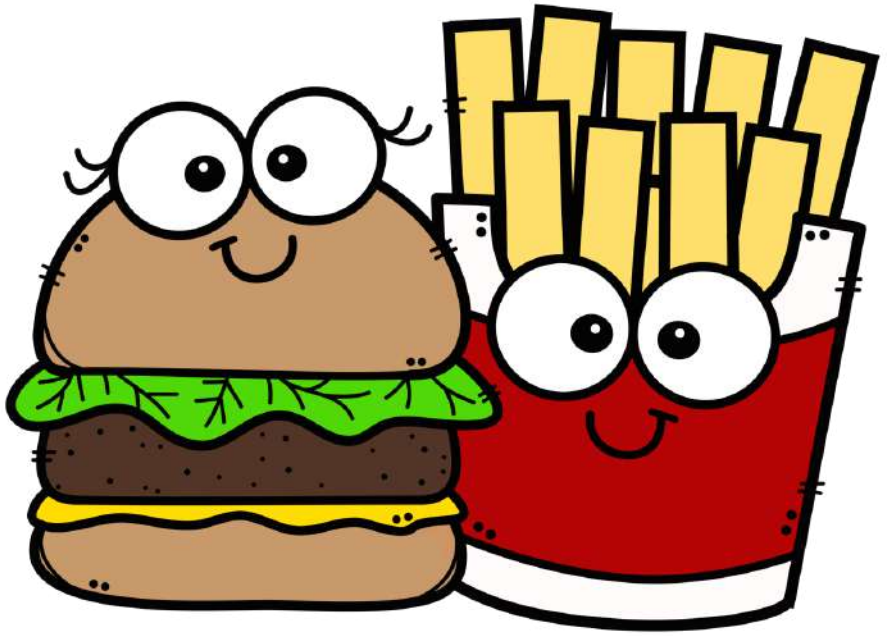
3.114

3.14

3.121

3.1

3.014



THINK AND WRITE

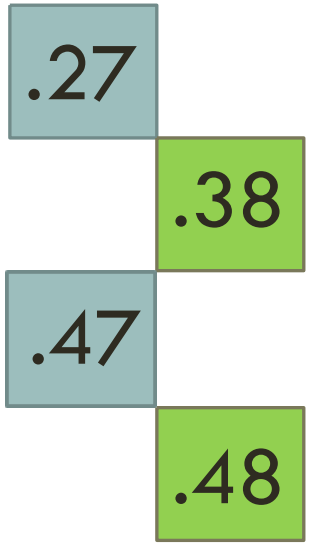
How can you use the place value decimal system to help you order numbers?

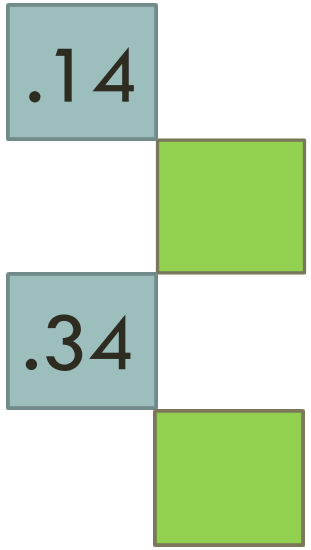
USING STRUCTURE TO SOLVE PROBLEMS

- Identify patterns in numbers.
- Apply patterns to see how numbers are organized.
- Analyze patterns to see structure in problems or tables.
- Break the problem down into simpler parts or steps.

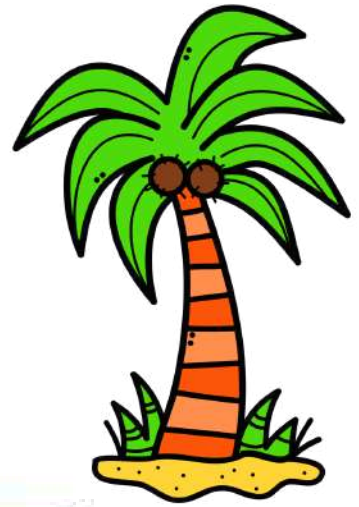
PROBLEM 1

Identify the pattern being used to go from a blue square to a green square. Then solve for the missing numbers.





PROBLEM 2



Rosa is driving to the beach. She passes the following signs.

What will be the next two numbers on the signs?

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