

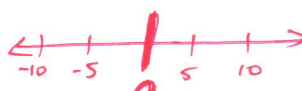
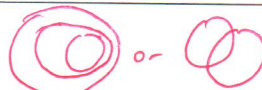
EXPLORING INTEGERS

1

Name: Key Date: _____ Period: _____

SECTION 1.1 BUILDING NUMBER LINES

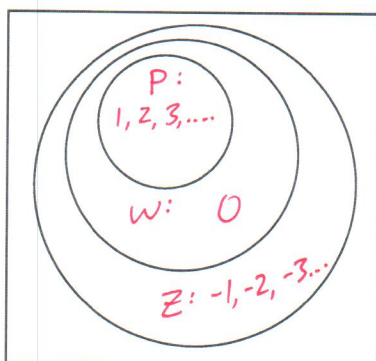
VOCABULARY

DEFINITION	EXAMPLE
Counting numbers/Natural numbers: also known as positive or natural numbers	1, 2, 3, ...
Whole numbers: also called non-negative numbers, counting numbers with 0	0, 1, 2, 3, ...
Integers: counting numbers with 0 and the negatives of the counting numbers	..., -3, -2, -1, 0, 1, 2, 3, ...
Origin: The address of 0 on the number line	
Venn Diagram A way of organizing sets of numbers or objects	

Big Idea: How do we categorize numbers? How do we construct number lines?

EXAMPLE 1

Call the set of positive integers P , the set of whole numbers W , and the set of integers Z . Use the Venn diagram and relate these three sets. Label the sets and list the elements in each set.



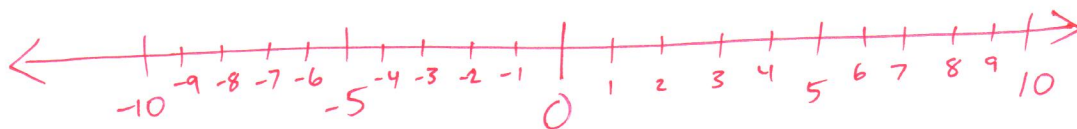
$$P = \{1, 2, 3, \dots\}$$

$$W = \{0, 1, 2, 3, \dots\}$$

$$Z = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$$

EXPLORATION: CONSTRUCTING A NUMBER LINE

1. Draw a horizontal line.



2. Pick a point near the center of the line and call this point the origin. Label the origin with the number 0.
3. Locate the numbers 1,2,3, ..., 10, and -1,-2,-3, ..., -10.

4. Where would 20, 30, 50 be located? 100? 1,000?

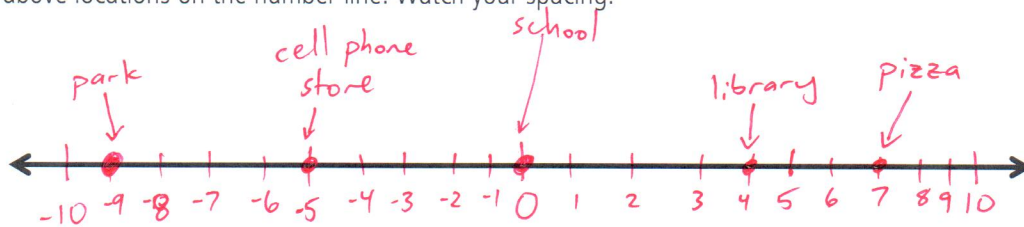
to the right of the number line 2 times past 10, 3 times
5 times, 10 times, and 100 times past 10 to the
right

5. Where would -20, -30, -50 be located? -100? -1000?

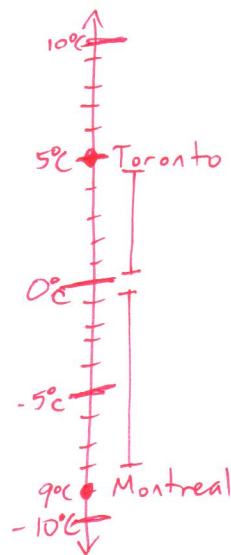
the same distances as the previous step, but to
the left of the number line

PRACTICE EXERCISES

1. The school is located at the origin of Pennsylvania Ave. We label its address as 0. The pizza place has address 7 and the library has address 4. Going in the other direction from the origin, we find a cell phone store with address -5 and a park with address -9. The number line represents Pennsylvania Ave. Label each of the above locations on the number line. Watch your spacing.



2. Alice visits Montreal, Canada where it is -9°C . Elliot visits Toronto, Canada where it is 5°C . Which temperature is closer to the freezing point? Draw a thermometer to prove your answer. Remember, when we measure temperature in degrees Celsius, 0°C is the freezing point of water.



Toronto is closer to the freezing point.

SUMMARY (What I learned today)
