Signed Numbers Study Guide

Q1: Name the opposite of each integer.

Integer	Opposite
19	−19
−1	1
-15	15
3	−3

Q2: Identify whether each number belongs to the given set. Put a check in each box that is true.

Number	Natural Numbers	Whole Numbers	Integers	Rational Numbers
$-\frac{2}{3}$				✓
-4			✓	✓
2	✓	✓	✓	✓
0		✓	✓	✓

Q3: Consider the following numbers.

−9, 1, 8, 0, −6, −3, 5, −1

Part A

Plot each number on the number line shown below.

Part B

How do you know that each number that you plotted is an integer?
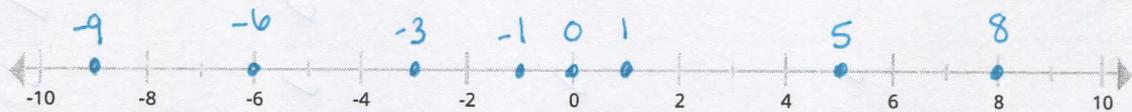
It is a whole number or its opposite

Part C

Which number that you plotted has the smallest value? How do you know?

−9. It is the farthest to the left on the number line

Part D

Which pair of numbers that you plotted are opposites? Explain how you can tell.

−1, 1. They are the same distance from zero but in opposite directions.

Q4: Determine a rational number between each pair of numbers.

Part A

$9\frac{1}{2}$ and $9\frac{2}{3}$ Sample Answer : $9\frac{5}{8}$

Part B

−8.16 and −8.17   Sample Answer : −8.165

Q5: Order the set of numbers from least to greatest.

$-6,\ 12.8,\ -1\frac{4}{5},\ -27.125,\ 29\frac{1}{9}$

$-27.125,\ -6,\ -1\frac{4}{5},\ 12.8,\ 29\frac{1}{9}$

Q6: Order the set of numbers from least to greatest.
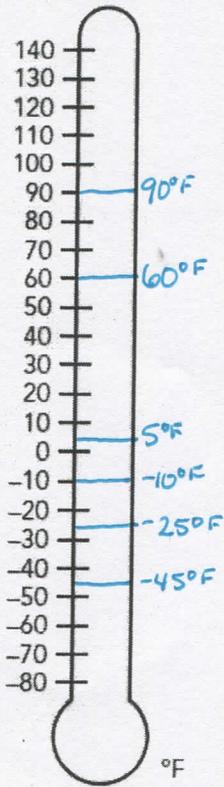
$12,\ -6.6,\ 8\frac{4}{9},\ -10.5,\ -9\frac{5}{6}$

$-10.5,\ -9\frac{5}{6},\ -6.6,\ 8\frac{4}{9},\ 12$

Q7: Complete each statement. Show your work.

Statement	Value	
$\lvert 14 \rvert + \lvert -3 \rvert =$ ___	17	$14 + 3 = 17$
The opposite of 8 is ___ .	-8	
$\lvert 0 \rvert + \lvert 15 \rvert =$ ___	15	$0 + 15 = 15$
$\lvert 6 \rvert - \lvert -6 \rvert =$ ___	0	$6 - 6 = 0$

Q8: Plot the following temperatures on the thermometer:

. −25˚F, 5˚F, 60˚F, −45˚F, −10˚F, 90˚F

Part B

Order the temperatures from greatest to least.

90°F, 60°F, 5°F, −10°F, −25°F, −45°F

Part C

What is the temperature change between the greatest value and the least value? Show your work.
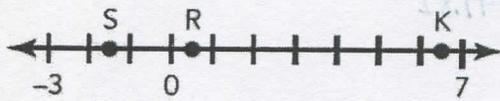
−45 → 90

$\boxed{135°F}$

−45 → 0 = 45
0 → 90 = +90
─────
135

Q9: Kathryn, Shane, and Robbie are going out for lunch. The hamburger, French fries, and drink combo meals they all want to buy are $6.50 each.
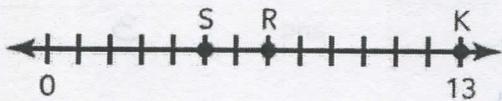
- Kathryn: I have enough money to buy two combo meals.
- Shane: I need $1.50 more to buy a combo meal.
- Robbie: I will get 50 cents back in change from buying my combo meal.

Omar and Bindi created a number line to represent the scenario.

Omar's number line:

Bindi's number line:

Part A

Explain what 0 and each point on Omar's number line represent.

> 0 represents $6.50, the cost of the combo meal
> Each point represents extra money that Robbie and Kathryn has and how much Shane is short of the combo.

Part B

Explain what 0 and each point on Bindi's number line represent.

> 0 represents $0.
> Each point represents the total amount of money each student has

Q10: *A company's profit and loss for 10 weeks are shown in the table. Losses are represented by amounts within parentheses.*

Week	1	2	3	4	5	6	7	8	9	10
Profit or Loss	$175.21	($216.79)	$323.83	($451.62)	($10.95)	$276.52	$104.61	($97.82)	$263.17	$412.00

-216.79   -451.62 -10.95   -97.82

Part A

Rewrite the loss amounts in the table as negative numbers.

Part B

Between which two weeks did the company have the largest gain in money? What was this gain? Show your work.

The company had the largest gain between weeks [2] *and* [3]

It was a gain of [$540.62]

$$
\begin{array}{r}
323.83 \\
+\ 216.79 \\
\hline
540.62
\end{array}
$$

Part C

What was the difference between the company's best week and their worst week? Show your work.

$$
\begin{array}{r}
451.62 \\
+\ 412.00 \\
\hline
863.62
\end{array}
$$

$863.62

Part D

Which week showed the value furthest from 0?

Week [4]