

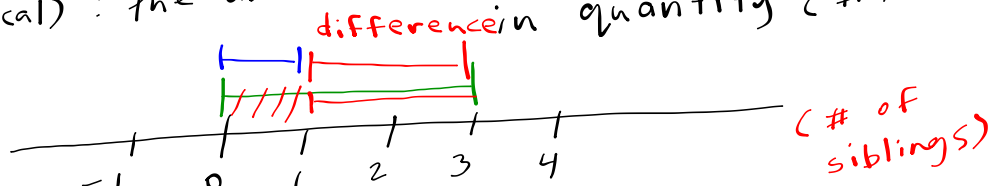
Lesson 7 : Word Questions Sept 14, 2022 $+ / - / \times / \div$ \$100 divided by ² friends

When to Subtract (-)

example: Sean has 3 siblings and Pia has 1 (sibling). What's the difference in the # of siblings?
 How many more siblings does Sean have than Pia?

- Key Words:
- difference (in / between)
 - the distance (between)
 - separate / apart / drop
 - how much more many

definition of difference (mathematical): the amount by which things differ



To calculate Difference:

$$d = |x_2 - x_1| \quad \text{or} \quad d = x_2 - x_1$$

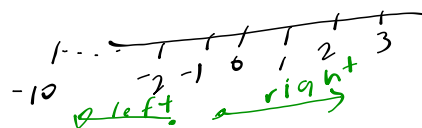
$$d = x_2 - x_1$$

$$d = 3 - 1$$

$$d = 2$$

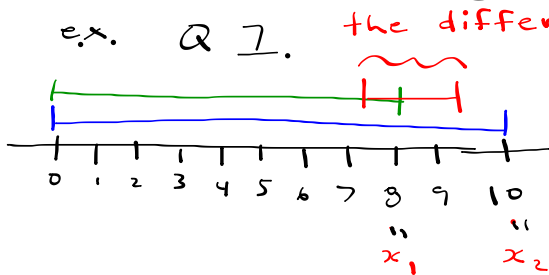
↑ bigger number
 $-10 < -2$

↑ more to the right on # line



Calculating the Difference

ex. Q 1.



step i Identify which operation

and if integers are + or -

difference $\rightarrow (-)$

positive 10 / 8
bonus (+) \$

bonus is good.

$$d = x_2 - x_1 \quad d = 10 - (+8)$$

$$d = 10 - 8 \quad d = 10 - 8$$

$$d = 2 \text{ \$} \quad d = 2$$

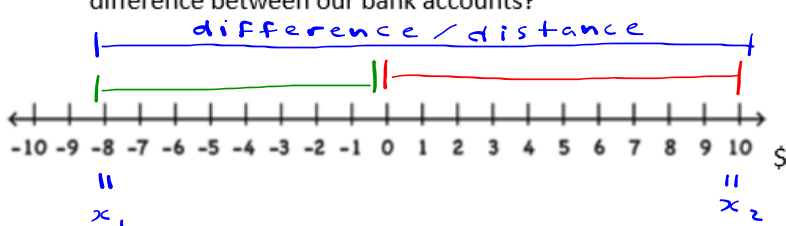
$$d = 10 + (-8)$$

$$d = 10 - 8$$

step ii. Find integers on number line. *do step ii and show me*

step iii. Identify biggest # (x_2) (more to the right) and sub in values: $d = x_2 - x_1$

2. My bank account shows a savings of \$10, and your bank account shows a debt of \$8. What is the difference between our bank accounts?



+ / - / x / ÷
 • Why: difference
 positive / negative
 • Why \$10 positive
 cause saving
 \$8 negative
 cause debt.

nota bene: difference is distance
 between the 2 integers

$$d = x_2 - x_1$$

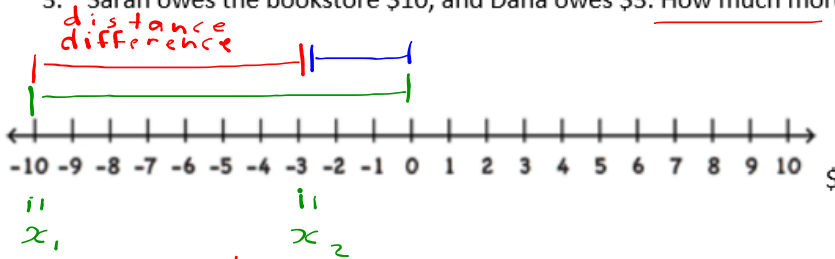
$$d = 10 - (-8)$$

$$d = 10 + 8$$

$$d = 18$$

step ii / step iii

3. Sarah owes the bookstore \$10, and Dana owes \$3. How much more does Sarah owe than Dana?



real bigger
cause
more to right

operation (-)
→ how much more
-10 cause 'owe'
-3 cause 'owe'

Step ii / Step iii

$$d = x_2 - x_1$$

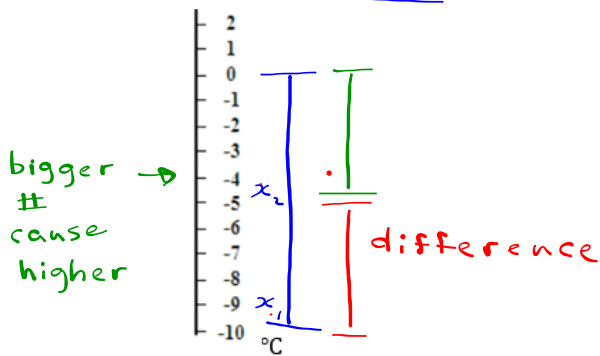
$$d = -3 - (-10)$$

adjacent

$$d = -3 + 10$$

$$d = 7 \$$$

4. Last New Year's Day, the temperature ~~was~~ ^{was} -9°C . This year, the temperature on New Year's Day was -4°C . How much warmer was the temperature this year?



How much more warmer

(-)
 -9
 -4 step ii / step iii

$$d = x_2 - x_1$$

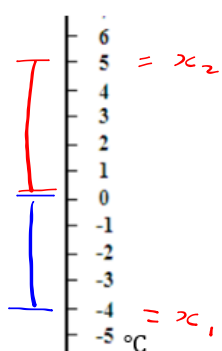
$$d = -4 - (-9)$$

adjacent

$$d = -4 + 9$$

$$d = 5^{\circ}\text{C}$$

5. Today, the temperature was -4°C , and yesterday the temperature was 5°C . What is the difference in temperature between the two days?



(-) difference

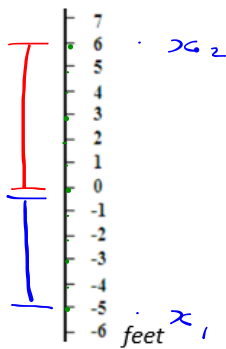
$$d = x_2 - x_1$$

$$d = 5 - (-4)$$

$$d = 5 + 4$$

$$d = 9^{\circ}\text{C}$$

6. I throw a ball upwards and it reached an elevation of 6 feet above sea level. You throw a ball into the water, and it reached an elevation of 5 feet below sea level. How much higher is my ball than yours?

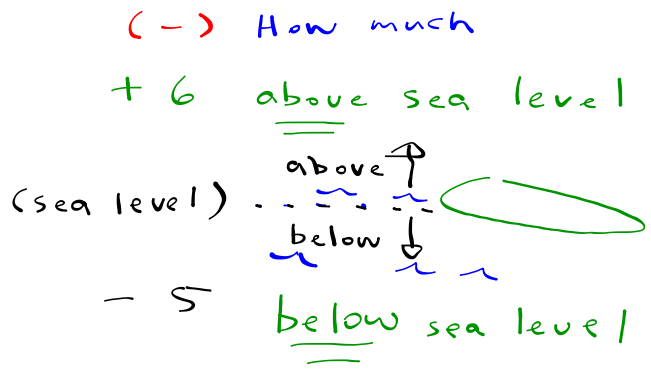


$$d = x_2 - x_1$$

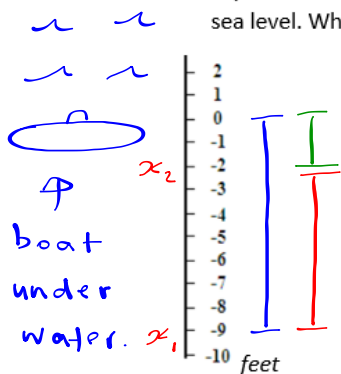
$$d = 6 - (-5)$$

$$d = 6 + 5$$

$$d = 11 \text{ feet}$$



7. My submarine is situated 9 feet below sea level, and your submarine is positioned 2 feet below sea level. What is the difference in their positions?



$$d = x_2 - x_1$$

↑
higher
(bigger)

$$d = -2 - (-9)$$

$$d = -2 + 9$$

$$d = 7 \text{ feet apart}$$