CHECK YOUR ANSWERS

1. 3
2. 4
3. 514.2
4. 25,000
5. 9.95
6. 0.675
7. 0.4
8. 52.7
9. 2.625 gallons
10. 16 laps

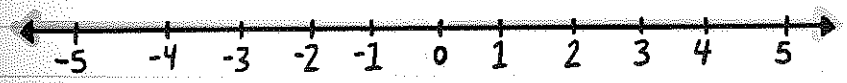
Chapter 11

ADDING POSITIVE AND NEGATIVE NUMBERS

To add positive and negative numbers, you can use a number line or use absolute value.

TECHNIQUE #1: USE a NUMBER LINE

Draw a number line and begin at **ZERO**.



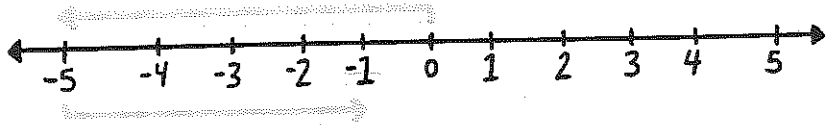
For a **NEGATIVE** (-) number, move that many spaces to the left.

For a **POSITIVE** (+) number, move that many spaces to the right.

Wherever you end up is the answer!

EXAMPLE: $-5 + 4$

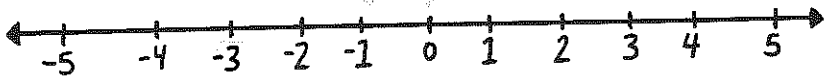
Begin at zero. Because -5 is negative, move 5 spaces to the left.



Because 4 is positive, move 4 spaces to the right. Where did you end up?

-1 is correct!

EXAMPLE: $-1 + (-2)$



Begin at zero. Move 1 space to the left. Then move 2 more spaces to the left. Where did you end up? -3

The sum of a number and its opposite always equals zero. For example, $4 + -4 = 0$. Think about it like this: if you take four steps forward, then four steps backward, you end up exactly where you began, so you've moved zero spaces!

TECHNIQUE #2: USE ABSOLUTE VALUE

If you need to add larger numbers, you probably don't want to draw a number line. So, look at the signs and decide what to do:

If the signs of the numbers you are adding are the same, they are alike (they go in the same direction), so you can add those two numbers together and keep their sign.

EXAMPLE: $-1 + (-2)$

Both -1 and -2 are negative, so they are alike. We add them together and keep their sign to get -3.

If the signs of the numbers you are adding are different, subtract the absolute value of each of the two numbers. Which number had a higher absolute value? The answer will have the same sign that this number had at the beginning.

To remember all this, try singing this to the tune of "Row, Row, Row Your Boat."

Same sign: keep and add!
Different sign: subtract!
Keep the sign of the larger amount,
then you'll be exact!

EXAMPLE: $-10 + 4$

-10 and 4 have different signs, so subtract the absolute value, like so: $|-10|-|4|=10-4=6$.

-10 had the higher absolute value, so the answer is also negative: -6.

EXAMPLE: $-35 + 100$

$-35 + 100 = 65$ (Different sign, so we have to subtract! $+100$ had the higher absolute value, so the answer is also positive.)

EXAMPLE: The temperature in Wisconsin was -8 degrees Fahrenheit in the morning. By noon, it had risen by 22 degrees Fahrenheit. What was the temperature at noon? Use integers to solve.

$-8 + 22 = 14$

The temperature at noon was 14 degrees Fahrenheit.

CHECK YOUR KNOWLEDGE

1. $-8 + 8$
2. $-22 + -1$
3. $-14 + 19$
4. $28 + (-13)$
5. $-12 + 3 + -8$
6. $-54 + -113$
7. $-546 + 233$
8. $1{,}256 + (-4{,}450)$
9. It's 0 degrees outside at midnight. The temperature of the air drops 20 degrees in the morning hours, then gains 3 degrees as soon as the sun comes up. What is the temperature after the sun comes up?
10. Denise owes her friend Jessica $\$25$. She pays her back $\$17$. How much does she still owe?

ANSWERS