Read sections P.1 (the absolute values), P.3 (Radicals), 2.2, 2.6 (sum and difference, product and quotients of functions) from the text book to prepare for next class.

Absolute Value

Absolute Value means ...

how far a number is from zero:
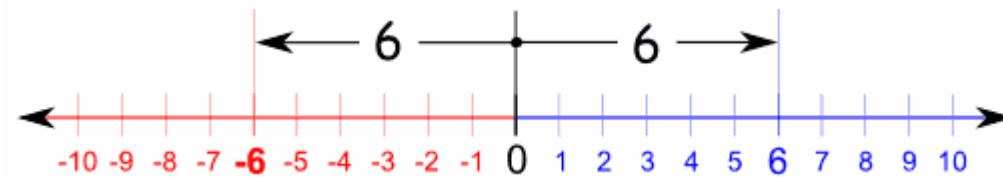
"6" is 6 away from zero,
and "−6" is **also** 6 away from zero.

So the absolute value of 6 is **6**,
and the absolute value of −6 is also **6**

$$|a| = b$$

We call whatever appears within the vertical bars the argument of the absolute value. Either the argument will be b, or it will be $-b$.

$$|a| = b$$

has the *two* solutions

$$a = b, \text{ or } a = -b.$$

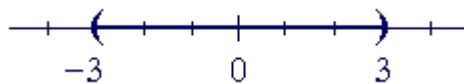1) What values could a have for the following equation?

$$|a| = 5$$

2) What values could x have for the following equation?
$$|x - 2| = 8$$

Absolute value *less than*.

$$|a| < 3.$$

The values of a that are less than 3 units from 0 are:

$$-3 < a < 3$$

3) For which values of x will this inequality be true?

$$|2x - 1| < 5$$

4) Without using a calculator, find the $\sqrt[3]{-64}$. How can you check if the answer you got is correct? (Hint: Raising the answer to a specific exponent, you should get -64)

5) Now, thinking about functions inside radicals, compare $f(x) = \sqrt{x + 2}$ and $g(x) = \sqrt[3]{x + 2}$. Will the domains of $f(x)$ *and* $g(x)$ be the same? What are their domains? If they are not the same, why not?