

**Warm Up!**

- 1.) Write homework assignment in agenda book.
- 2.) Place homework on your desk. I will be walking around to check.
- 3.) Write a real life situation to represent the integer -18.

Lesson 1.3: Absolute Value

Learning Target: I can find and use absolute value.

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Absolute Value is the distance a number is from 0 on a number line.  
 For example, the absolute value of -3 is 3 because -3 is 3 units from 0.

Absolute value is written as  $|-3|$

$$|-2| = 2$$

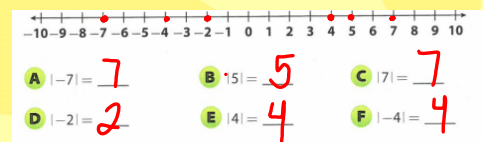
$$|2| = 2$$

$$-|-4| = -4$$

$$-|4| = -4$$

Example 1: Graph the following numbers on the number line. Then use your number line to find each absolute value.

-7, 5, 7, -2, 4, -4



Example 2: Which pairs of numbers have the same absolute value? How are these numbers related?  
*-7 and 7 -4 and 4*

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Example 3: The temperature at night reached -13 degrees Fahrenheit. Write an equivalent statement about the temperature using the absolute value of the number.

$| -13 | = 13$

Example 4: Sasha's savings account balance changed by \$34 one week and -\$67 the next week. Which amount represents the greatest change?

$-67$

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More Practice:

Find each absolute value.

5.  $| -12 | = 12$     6.  $| 91 | = 91$     7.  $| -55 | = 55$   
 8.  $| 0 | = 0$     9.  $| 88 | = 88$     10.  $| 1 | = 1$

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**Real World Connections**

1.) ~~Jacob earned \$80 for babysitting and deposited the money into a savings account. The next week he spent \$85 on video games. Use integers to describe the weekly change in Jacob's savings account balance.~~

2.) Death Valley has an elevation of -282 feet relative to sea level. Explain how to use absolute value to describe the elevation of Death Valley as a positive integer.

$282 \text{ ft below sea level}$

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7. **Analyze Relationships** Bertrand collects movie posters. The number of movie posters in his collection changes each month as he buys and sells posters. The table shows how many posters he bought or sold in the given months.

Month	January	February	March	April
Posters	Sold 20	Bought 12	Bought 22	Sold 28

a. Which months have changes that can be represented by positive numbers? Which months have changes that can be represented by negative numbers? Explain.

b. According to the table, in which month did the size of Bertrand's poster collection change the most? Use absolute value to explain your answer.

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**H.O.T.** FOCUS ON HIGHER ORDER THINKING

12. **Make a Conjecture** Can two different numbers have the same absolute value? If yes, give an example. If no, explain why not.  
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13. **Communicate Mathematical Ideas** Does  $-|-4| = | -(-4) |$ ? Justify your answer.  
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14. **Critique Reasoning** Angelique says that finding the absolute value of a number is the same as finding the opposite of the number. For example,  $|-5| = 5$ . Explain her error.  
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