

P11

# ABSOLUTE VALUE

Mark a point at both 5 and -5 on the number line below.



Describe what you notice to be the difference.

The one is - because it's to the left of 0. The other is + because it's to the right of 0.

## ABSOLUTE VALUE

- The absolute value of a number is the distance away from zero on the number line.
- The magnitude of a number is always the absolute value of the number.

Ex:  $|-5|$  is read The absolute value of -5 is 5

1. Use the number line to determine the absolute value.

A.  $|-8|$   
3

B.  $|-1|$   
1

C.  $|3|$   
3

D.  $|-4\frac{1}{2}|$   
 $4\frac{1}{2}$

E.  $|6|$   
6



Write the absolute value to describe the situation below.

2. New Orleans is 8 feet below sea level

$$|-8| = 8$$

3. Mr. Simpson owes \$563 on his credit card bill

$$|-563| = 563$$

Absolute values can be Compared

Compare the following absolute values.

<p>4. <math>2.5</math> <math>\circlearrowleft</math> <math>2.5</math>  <math> 2.5 </math> <math>\circlearrowleft</math> <math> -2.5 </math></p>	<p>5. <math>3.9</math> <math>\circlearrowleft</math> <math>4</math>  <math> -3.9 </math> <math>\circlearrowleft</math> <math>4</math></p>	<p>6. <math>6.25</math> <math>\circlearrowleft</math> <math>7.8</math>  <math> 6\frac{1}{4} </math> <math>\circlearrowleft</math> <math> -7.8 </math></p>	<p>7. <math>-\frac{16}{4}</math> <math>\circlearrowright</math> <math> 3.9 </math>  <math> -16 </math> <math>\circlearrowright</math> <math> 3.9 </math></p>
<p>8. <math>-24</math> <math>\circlearrowleft</math> <math>-18</math></p>	<p>9. <math>24</math> <math>\circlearrowright</math> <math>18</math>  <math> -24 </math> <math>\circlearrowright</math> <math> -18 </math></p>		

What do you notice about problems 8 and 9 above?

Negative numbers values are opposite positive number values. Opposite number values are opposite.

Use your understanding of absolute value to answer the questions below.

<p>10. <math> -16 </math> <math>16</math></p>	<p>11. Find all values of <math>x</math>, where <math> x  = 11</math>. <math>-11, 11</math></p>
<p>12. Find all values of <math>x</math>, where <math> x  = \frac{7}{8}</math>.</p>	<p>13. Crew owes his mom \$23 and James owes his mom \$8. Which amount has the greatest magnitude?</p>
<p>14. <math> 8.9 </math></p>	<p>15. Find two numbers that are 25.6 units away from 0. <math>-25.6, 25.6</math></p>

Challenge!

16.  $-|-39|$

$-39$

17.  $|-44| + 5$

$44 + 5$   
 $49$

18.  $50 - |-18|$

$50 - 18$

Summarize today's lesson: