

1) Which of the following sets contains only rational numbers?

A.  $0.\overline{3}$ ,  $0.1\overline{6}$ , 3.14

B.  $\frac{1}{9}$ ,  $\pi$ ,  $4\frac{1}{6}$

C.  $0.\overline{2}$ ,  $\frac{3}{2}$ ,  $\sqrt{7}$

D.  $0.\overline{8}$ ,  $0.\overline{87}$ , 0.16075423...

2) Which of the following sets contains only irrational numbers?

A.  $\pi$ ,  $\sqrt{2}$ , 4.238905...

B.  $\frac{1}{7}$ , 3.14, 5

C.  $2\frac{1}{4}$ ,  $\sqrt{5}$ , 7.717

D.  $0.\overline{1}$ ,  $0.\overline{09}$ ,  $0.1\overline{6}$

1) Which of the following sets contains only rational numbers?

*repeats or ends*

**A.**  $0.\overline{3}, 0.1\overline{6}, 3.14$

**B.**  $\frac{1}{9}, \pi, 4\frac{1}{6}$

**C.**  $0.\overline{2}, \frac{3}{2}, \sqrt{7}$

**D.**  $0.\overline{8}, 0.\overline{87}, 0.16075423\dots$

2) Which of the following sets contains only irrational numbers?

*does not end or repeat*

**A.**  $\pi, \sqrt{2}, 4.238905\dots$

**B.**  $\frac{1}{7}, 3.14, 5$

**C.**  $2\frac{1}{4}, \sqrt{5}, 7.717$

**D.**  $0.\overline{1}, 0.\overline{09}, 0.1\overline{6}$

# Homework

...explain your reasoning in detail.

5	Rational, because 5 is natural, whole, and an integer. real
$\frac{3}{7}$	Rational, because it <del>is</del> is a fraction. real
0.575	Rational, because it is a decimal that terminates. real
$\sqrt{5}$	Irrational, because 5 is not a perfect square. Therefore, the decimal is non-terminating. real
$5 + \sqrt{7}$	Irrational, because $\sqrt{7}$ is non-terminating. real
$\frac{\sqrt{10}}{2}$	Irrational, because $\sqrt{10}$ is non-terminating. real
5.75...	Irrational, because 5.75... is non-terminating. real

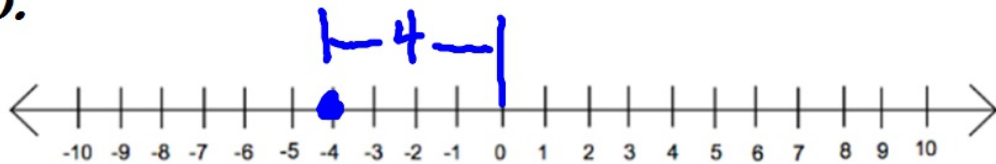
# Absolute Value

*Absolute value is used to describe the distance a number is from Zero.*

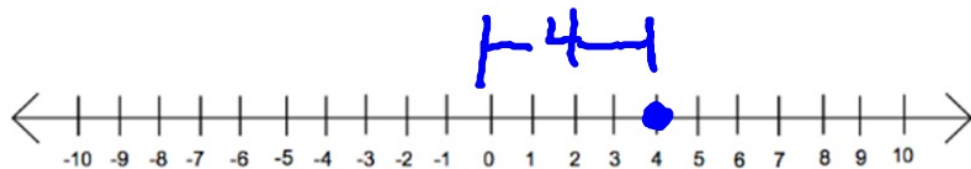
*The notation we use to show absolute value is a pair of parallel lines.  
Draw these below.*

To read the expression  $|-4|$  you would say, "the absolute value of -4"

*Looking at the number line below, we can see that -4 is four spaces away from zero.*



*Positive 4 is also four spaces away from zero.*



So,  $|-4| = 4$  AND  $|4| = 4$

*Because absolute value refers to distance on a number line, it is always a ~~positive~~ number!  
non-negative!*

What is the absolute value of each number ?  
Drag it through the tunnel and see!

$|12|$



$|-15|$



$|-2.5|$



$|5-2|$



$|3+7|$



$|9-3|$



Evaluate the following using your knowledge of Absolute values.

Try These.

$$\begin{array}{lll} |2| - |2| = \underline{\hspace{2cm}} & |16 - 2| = \underline{\hspace{2cm}} & |-8| - |-8| = \underline{\hspace{2cm}} \\ |7 - 6| = \underline{\hspace{2cm}} & |-8| + |-7| = \underline{\hspace{2cm}} & |-21| - |9| = \underline{\hspace{2cm}} \\ |15| + |19| = \underline{\hspace{2cm}} & |14 + 7| = \underline{\hspace{2cm}} & |-16| - |8 + 3| = \underline{\hspace{2cm}} \end{array}$$



Evaluate the following using your knowledge of Absolute values.

Try These.

$$\begin{array}{lll} |2| - |2| = \square & |16 - 2| = \square & |-8| - |-8| = \square \\ |7 - 6| = \square & |-8| + |-7| = \square & |-21| - |9| = \square \\ |15| + |19| = \square & |14 + 7| = \square & |-16| - |8 + 3| = \square \end{array}$$

$$\begin{array}{l} 1) |2| - |2| \\ 2 - 2 = 0 \end{array}$$

$$\begin{array}{l} 2) |16 - 2| \\ |14| \\ 14 \end{array}$$

$$\begin{array}{l} 3) |-8| - |-8| \\ 8 - 8 \\ 0 \end{array}$$

$$\begin{array}{l} 4) |7 - 6| = |1| = 1 \end{array}$$

$$\begin{array}{l} 5) |-8| + |-7| \\ 8 + 7 = 15 \end{array}$$

$$\begin{array}{l} 6) |-21| - |9| \\ 21 - 9 \\ 12 \end{array}$$

USING  
INTEGERS  
TO FIND  
DISTANCES



An eagle leaves her nest on the side of a cliff. She soars upward 60 ft and then dives 80 ft. What is her change in elevation after leaving the nest?



$$\begin{array}{r} -20 \\ \boxed{140 \text{ ft}} \\ 20 \end{array}$$