

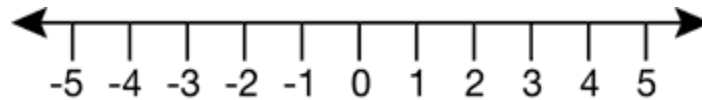
## Geometry- Distance Between Two Points

### Introduction

We have been working to figure out the measurement of different line segments. Today, we are going to continue with this work. Let's begin.

### On a Number Line

The first measurement that we are going to work to calculate is the distance between two points that are on a number line. When we calculate the distance on a number line, we are looking for the number of units between two points on that number line. Let's start by looking at a number line.



$$A = 1$$

$$B = 4$$

Find the distance from A to B

To find the distance from A to B we use the following formula.

Distance on a Number Line

$$|A - B|$$

To find the distance between two points on a number line, we take the absolute value of one point subtracted from the other point. In this example, we used A and B, but any two points can be substituted into this formula. Because we take the absolute value of the difference between the two points, it also doesn't matter which order you choose to write them in. We could have just as easily written B minus A.

You may be wondering why it is necessary to take the absolute value of the difference between the two points. A distance can never be negative, but if one of the points had been negative, then we could end up with a negative answer. We want the number of units between the two points. Units, as a distance, are never negative.

Let's go back to our example and see how this one works out.

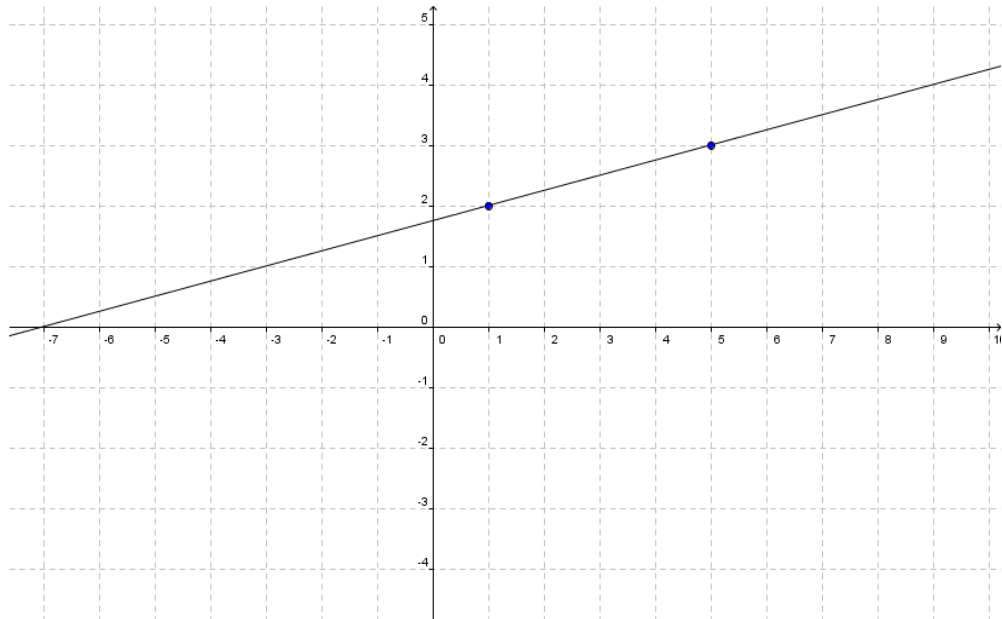
$$|1 - 4|$$

$$|-3| = 3$$

In this example, we did have a negative number as our answer when we subtracted 1 and four, but we took the absolute value of the difference, and found that there are three units between A and B.

### Distance on a Coordinate Grid

We can also find the distance between two points that have been graphed on a coordinate grid. Let's look at an example.



Let's say that we wanted to figure out the distance between these two points on this graph. We could use a formula, but with one as simple as this, we can just count the units or boxes between the two points. How many units are there between the two points on this grid?

*answer- four*

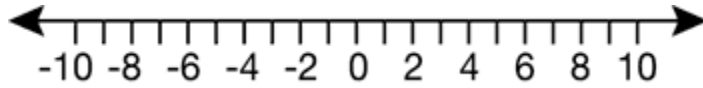
When you can use this simple method, it is going to be the easiest method for measuring the distance between two points.

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### Geometry- Distance Between Two Points Worksheet

Directions: Find the distance between the two points on the number line.



1.  $A = -6$   
 $B = 4$

2.  $C = 3$   
 $D = 9$

3.  $E = -5$   
 $F = 2$

4.  $G = -9$   
 $H = 1$

5.  $I = -7$   
 $J = -3$

6.  $K = -3$   
 $L = 0$

7.  $M = -4$   
 $N = 5$

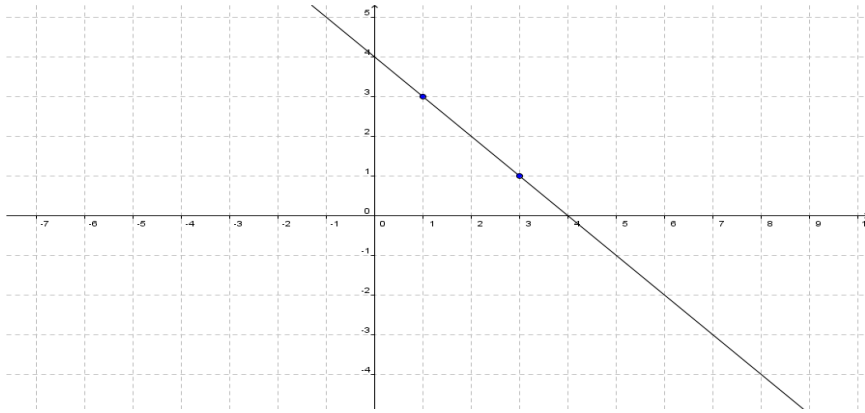
8.  $O = -3$   
 $P = 3$

9.  $Q = 10$   
 $R = -1$

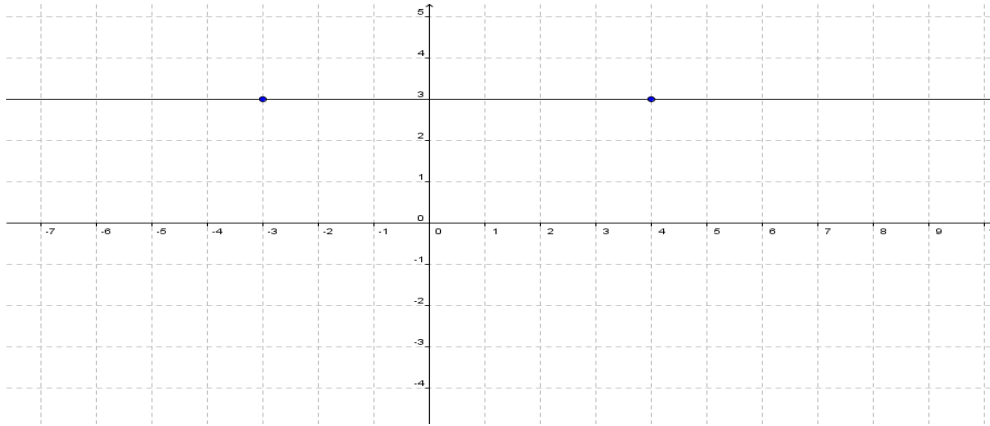
10.  $S = -5$   
 $T = -2$

Directions: Find the distance between each pair of points on the coordinate grid.

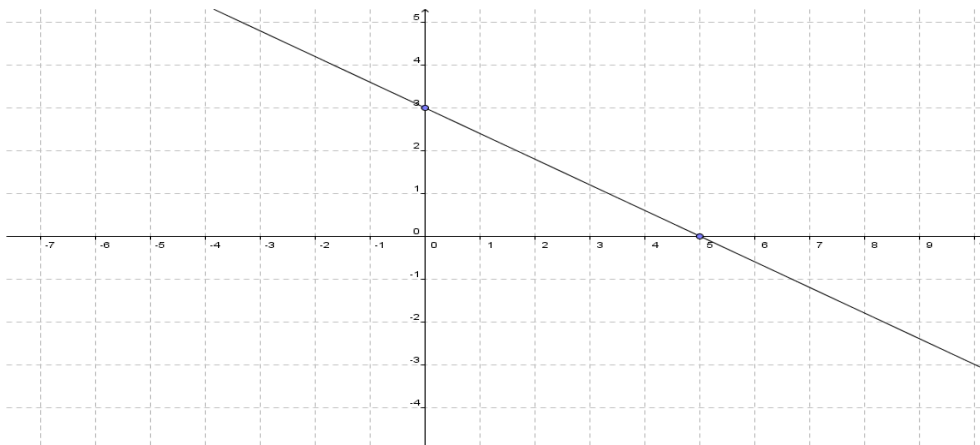
11.



12.



13.

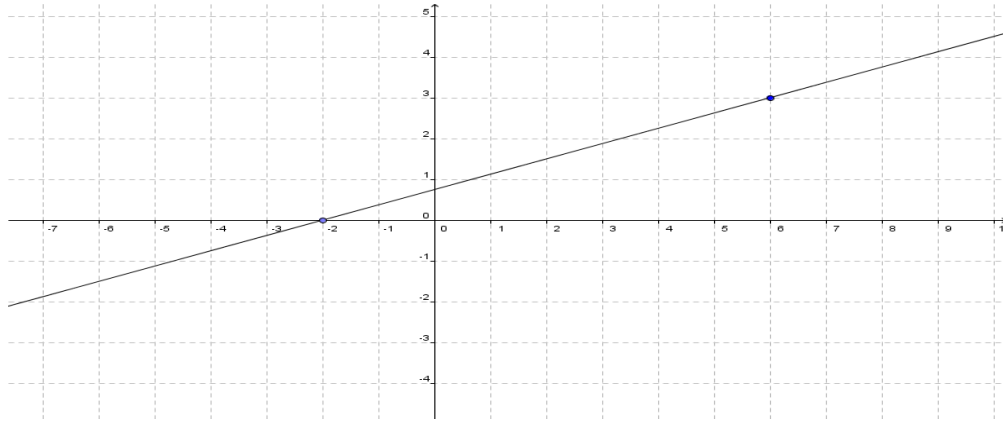


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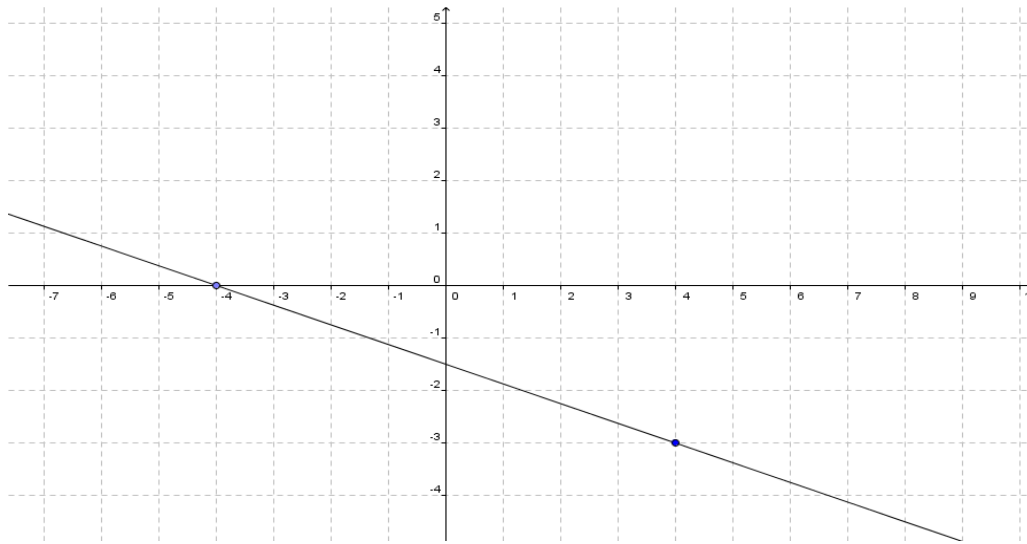


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14.



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Answer Key

1. 10 units
2. 6 units
3. 7 units
4. 10 units
5. 4 units
6. 3 units
7. 9 units
8. 6 units
9. 11 units
10. 3 units
11. 2 units
12. 7 units
13. 5 units
14. 8 units
15. 8 units