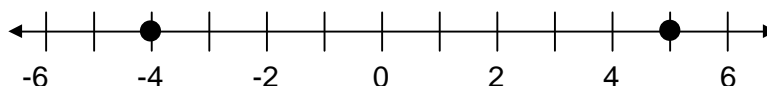


Section 1.4 Finding the Measures of Segments

A line segment is the portion of a line between two points. The length of a the line segment is the distance between those two points. We can use a ruler as a number line or some other device with a scale to measure the length of a line segment. The scale can be inches, centimeters, or any other convenient unit of measure.

Since the distance between two points is always positive, we find the distance between two points on a number line by taking the absolute value of the difference between the two numbers.

Example: Find the distance between points A and B on the number line.



distance from A to B = $|-4 - 5| = |-9| = 9$. **The distance between A and B is 9 units.**

We can also use the distance formula or the Pythagorean theorem to find the distance between two points on a coordinate plane. We will derive the formula in chapter 8, but right now, either use the distance formula or use the Pythagorean theorem by plotting the two points and drawing a right triangle.

The distance formula: $distance = d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Example: Find the distance between A (3,5) and B (7, -2)

A (3,5) (x_1, y_1) B (7,-2) (x_2, y_2)

$$d = \sqrt{(7 - 3)^2 + (-2 - 5)^2}$$

$$d = \sqrt{(4)^2 + (-7)^2}$$

$$d = \sqrt{16 + 49} = \sqrt{65} \approx 8.06 \text{ units}$$

Construction of a Line Segment with the Same Length

You can use a compass to construct a line segment of the same length. Look at the construction instructions on page 26. Be able to do this for the test.

Remember when working problems in geometry to always draw any figure that is described or given. If you do this, you will be able to better understand each problem. If you don't, you will not get all the points for the problem.