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* The **distance** between any two points is the absolute value of the difference of the coordinates. If the coordinates of points *A* and *B* are *a* and *b*, then the distance between *A* and *B* is |*a* – *b*| or |*b* – *a*|. The distance between *A* and *B* is also called the **length** of *AB*, or *AB*.



**EX 1:** **Find each length.**



**A.** *BC* ***B.*** *AC*

**EX 2:** **Find each length.**



**a.** *XY* ***b.*** *XZ*

* **Congruent segments** are segments that have the same length. In the diagram, *PQ* = *RS*, so you can write *PQ* ≅ *RS*. This is read as “segment *PQ* is congruent to segment *RS*.” ***Tick marks*** are used in a figure to show congruent segments.



* You can make a sketch or measure and draw a segment. These may not be exact. A **construction** is a way of creating a figure that is more precise. One way to make a geometric construction is to use a compass and straightedge.

**EX 3:** **Sketch, draw, and construct a segment congruent to *MN*.**



* In order for you to say that a point *B* is **between** two points *A* and *C*, all three points must lie on the same line, and *AB* + *BC* = *AC*.



**EX 4:** ***G* is between *F* and *H*, *FG* = 6, and *FH* = 11. Find *GH*.**

**EX 5:** ***M* is between *N* and *O*. Find *NO*.**

**EX 6:** ***E* is between *D* and *F*. Find *DF*.**

* The **midpoint** *M* of *AB* is the point that **bisects**, or divides, the segment into two congruent segments. If *M* is the midpoint of *AB*, then *AM* = *MB*.
* So if *AB* = 6, then *AM* = 3 and *MB* = 3.

**EX 7:** ***D* is the midpoint of *EF*, *ED* = 4*x* + 6, and *DF* = 7*x* – 9. Find *ED*, *DF*, and *EF*.**



**EX 8:** ***S* is the midpoint of *RT*, *RS* = –2*x*, and *ST* = –3*x* – 2. Find *RS*, *ST*, and *RT*.**



**WARM UP:**