

Notes 1-2: Measuring and Constructing Segments

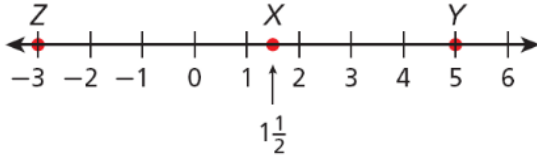
Geometry - Ch. 1: Foundations for Geometry

Objectives: Use length and midpoint of a segment.

Construct midpoints and congruent segments.

Ruler Postulate: the distance between A and B , written as AB , is equal to $|A-B|$ or $|B-A|$.

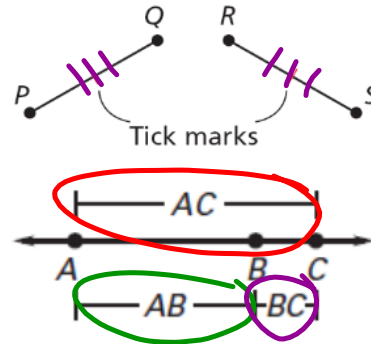
EX 1: Find the length of XY and YZ , or distance between points. a) $XY = | \quad - \quad |$ b) $YZ =$



$= 3.5$ $= 8$

Equal vs. Congruent: If the distance between P and Q is equal to the distance between R and S , then their

lengths are equal, but the segments are congruent (\cong).



SAP

Segment Addition Postulate: If B is between A and C ,

then $AB + BC = AC$

EX 2: B is between A and C , $AC = 14$, and

$BC = 11.4$. Find AB . $AC = AB + BC$
 $14 = x + 11.4$
 -11.4 -11.4
 $2.6 = x$
 $AB = 2.6$

EX 3: M is between N and O . Find NO .

$NM + MO = NO$
 $17 + 3x - 5 = 5x + 2$
 $12 + 3x = 5x + 2$
 $-3x$ $-3x$
 $12 = 2x + 2$
 -2 -2
 $10 = 2x$
 $5 = x$
 $NO = 5x + 2 = 5(5) + 2 = 25 + 2 = 27$

Midpoint: a point which bisects a segment.

Segment Bisector: any point line or ray which intersects a segment at its midpoint, dividing the segment into 2 equal parts.

EX 4: D is the midpoint of EF . Find ED , DF , and EF .

$E \quad 4x + 6 \quad D \quad 7x - 9 \quad F$
 $ED = DF$
 $4x + 6 = 7x - 9$
 $-4x$ $-4x$
 $6 = 3x - 9$
 $+9$ $+9$
 $15 = 3x$
 $x = 5$, $ED = 26$, $DF = 26$, $EF = 52$
 $\frac{15}{3} = \frac{3x}{3}$
 $x = 5$