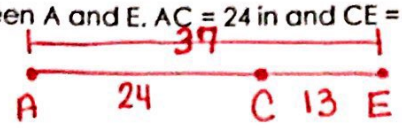
Day 2: Segment Relationships Notes

Think About It: See if you can determine the length of the requested segment. Draw a picture first.

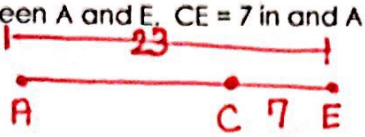
1. C is between A and E. AC = 24 in and CE = 13 in. How long is AE?



$24 + 13 = AE$

$37 = AE$

2. C is between A and E. CE = 7 in and AE = 23 in. How long is AC?

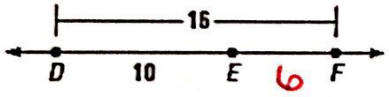


$AC + 7 = 23$

$AC = 16$

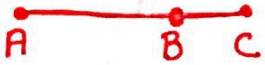
Segment Addition Postulate: If point B is on $\overline{AC}$, and between points A and C, then $\overline{AB} + \overline{BC} = \overline{AC}$.

a. Use the diagram to find $\overline{EF}$.



Segment Addition

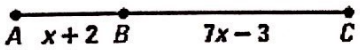
Given:



Conclusion:

$\overline{AB} + \overline{BC} = \overline{AC}$

b. Write an expression for AC.

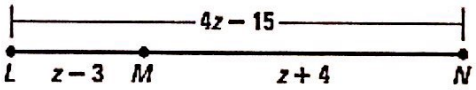


$AC = AB + BC$

$AC = x + 2 + 7x - 3$

$AC = 8x - 1$

c. Find the value of z.



$LM + MN = LN$

$z - 3 + z + 4 = 4z - 15$

$2z + 1 = 4z - 15$

$-2z \quad -2z$

$1 = 2z - 15$

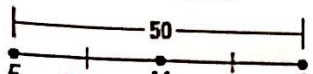
$+15 \quad +15$

$\frac{16}{2} = \frac{2z}{2}$

$8 = z$

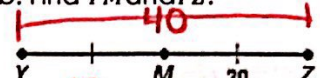
Midpoint: Point that divides the segment into two congruent segments.

a. Find $\overline{FM}$ and $\overline{MG}$.



25 25

b. Find $\overline{YM}$ and $\overline{YZ}$.



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Midpoint

Given:

m is the midpoint of $\overline{AB}$

Conclusion:

$\overline{Am} \cong \overline{mB}$

c. T is the midpoint of $\overline{QR}$. Solve for x.

$4x - 10 = 78$

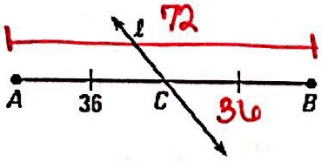
$+10 \quad +10$

$\frac{4x}{4} = \frac{88}{4}$

$x = 22$

Segment Bisector: A line, line segment, or ray that divides the line segment into two line segments of equal length.

a. Find $\overline{CB}$ and $\overline{AB}$.



Segment Bisector

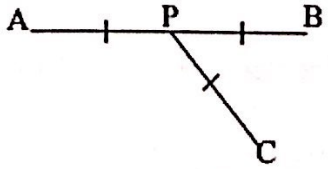
Given:

$\overline{BC}$ is the segment bisector of $\overline{AC}$.

Conclusion:

$\overline{AB} \cong \overline{BC}$

b. Determine if you have enough information to determine if $\overline{PC}$ is the segment bisector of $\overline{AB}$. Explain why or why not.



Yes PC is the segment bisector because $\overline{AP} \cong \overline{PB}$