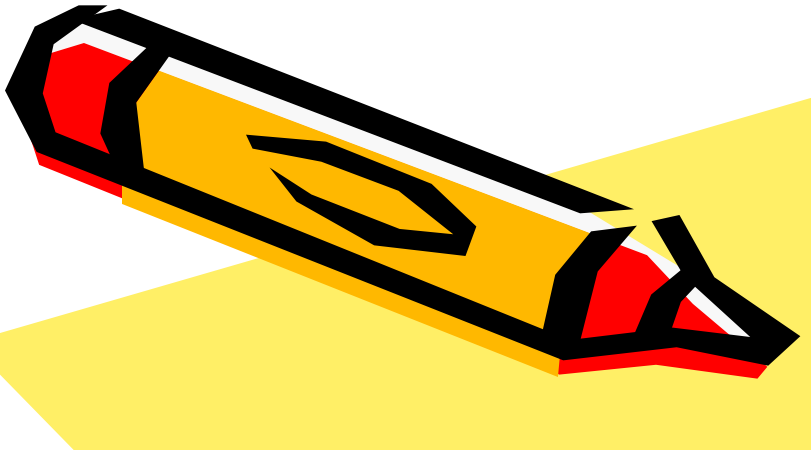


Geometry

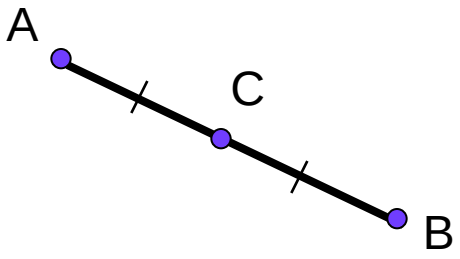
Midpoints and Segment Bisectors

Midpoint and Segment Bisector

- Midpoint: The point that divides the segment into two congruent segments. The midpoint is equidistant from both endpoints.

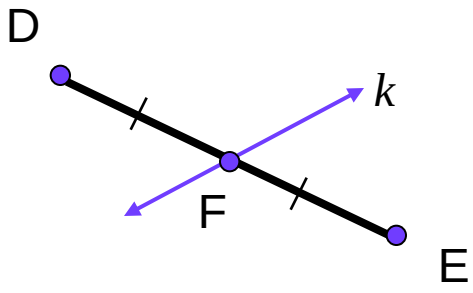
- Segment Bisector: A point, line, ray, line segment, or plane that intersects the segment at its midpoint.

Midpoint and Segment Bisector



Point C is the midpoint of $\overline{AB}$.

$\overline{AC} \cong \overline{BC}$ and AC = BC

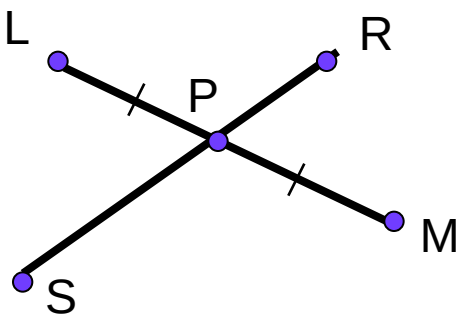


Line k is a bisector of DE.
DE got cut into 2 equal parts.
We don't know anything about line *k.*

Point F is the midpoint of $\overline{DE}$.

$\overline{DF} \cong \overline{FE}$ and DF = FE

Midpoint and Segment Bisector



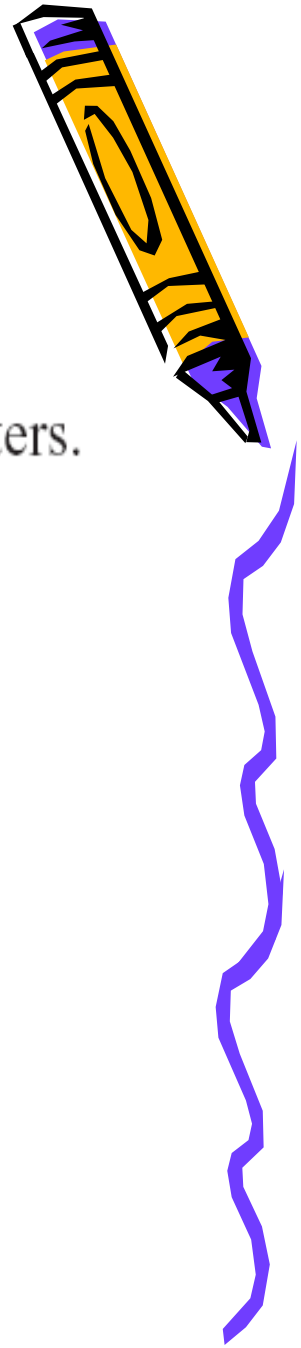
If $\overline{RS}$ bisects $\overline{LM}$, then

Point P is the midpoint of $\overline{LM}$

$\overline{LP} \cong \overline{PM}$ and LP = PM

We don't know anything about the measurements of $\overline{SP}$ and $\overline{PR}$, other than SP + PR = SR.

Examples



1. Line RS bisects $\overline{PQ}$ at point R. Find RQ if $PQ = 14$ centimeters.

2. Line JK bisects $\overline{MN}$ at point J. Find MN if $JM = 6\frac{3}{4}$ feet.

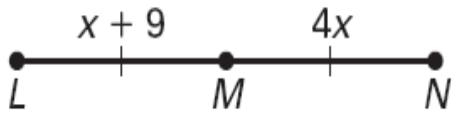
3. Point T bisects $\overline{UV}$. Find UV if $UT = 4\frac{1}{2}$ yards.

4. Point C bisects $\overline{AB}$. Find CB if $AB = 14.8$ meters.

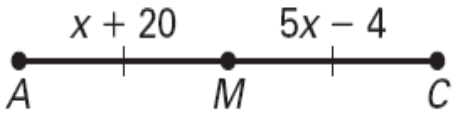
Examples

In the diagram, *M* is the midpoint of the segment. Find the indicated length.

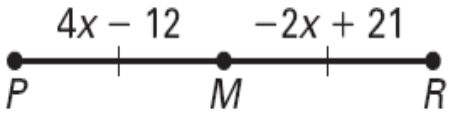
5. Find *LN*.



6. Find *AM*.



7. Find *MR*.



Examples

1. R is the midpoint of $\overline{ST}$. SR = 2x + 3, ST = 34. Find SR.

2. F is the midpoint of $\overline{GH}$. GF = x + 1, GH = 5x – 4. Find GH.

3. $\overline{AB}$ bisects $\overline{MN}$ at R. AR = 3x + 2, RB = x + 4, AB = 18, MR = 4y – 2, MN = 6y + 12. Find AR and MN.