

Tools For Geometry – Addition Postulates

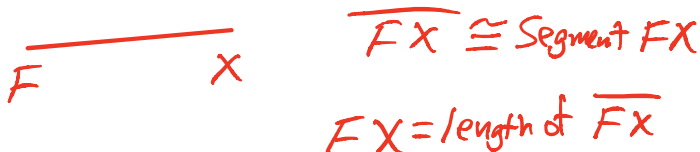
Notes Section 1.4

Name _____

Between – *B is between A and C.*



Segment – A segment consists of two endpoints and all the points between them.



Segment Addition Postulate – A is between C and T iff $CA + AT = CT$.

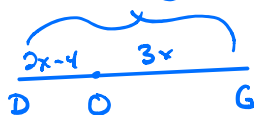
If A is between C and T, then $CA + AT = CT$

If , then $CA + AT = CT$

If $CA + AT = CT$, then A is between C and T.

If $CA + AT = CT$, then .

1. Find OG if O is between D and G , $DO = 2x - 4$, $OG = 3x$, and $DG = 26$.



$$DO + OG = DG$$

$$(2x - 4) + (3x) = 26$$

$$5x - 4 = 26$$

$$5x = 30$$

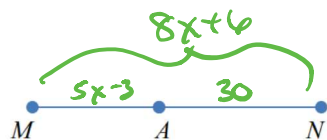
$$x = 6$$

$$OG = 3x$$

$$= 3(6)$$

$$OG = 18$$

- 2.



Given $MA = 5x - 3$

$AN = 30$

$MN = 8x + 6$

Find x .

$$MA + AN = MN$$

$$(5x - 3) + (30) = 8x + 6$$

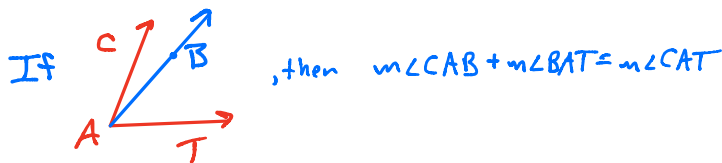
$$5x + 27 = 8x + 6$$

$$27 = 3x + 6$$

$$21 = 3x$$

$$7 = x$$

Angle Addition Postulate: R is in the interior of $\angle PQS$ iff $m\angle PQR + m\angle RQS = m\angle PQS$.



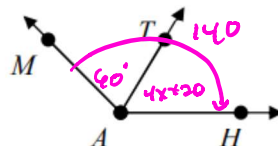
- 3.

Given

$$m\angle MAT = 60^\circ$$

$$m\angle MAH = 140^\circ$$

$$m\angle TAH = 4x + 20$$



Find x

$$m\angle MAT + m\angle TAH = m\angle MAH$$

$$(60^\circ) + (4x + 20) = 140^\circ$$

$$4x + 80 = 140$$

$$4x = 60$$

$$x = 15$$

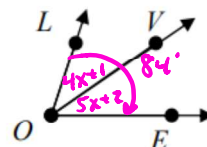
- 4.

Given

$$m\angle LOE = 84^\circ$$

$$m\angle LOV = 4x + 1$$

$$m\angle VOE = 5x + 2$$



Find x

$$m\angle LOV + m\angle VOE = m\angle LOE$$

$$(4x + 1) + (5x + 2) = 84$$

$$9x + 3 = 84$$

$$9x = 81$$

$$x = 9$$

Find $m\angle LOV$

$$m\angle LOV = 4x + 1$$

$$= 4(9) + 1$$

$$= 36 + 1$$

$$m\angle LOV = 37$$

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