Ed Puzzle
NOWWWWWWWWWW!!!!!!!!!!!!!!!!!!!

Welcome!! Please grab your ISN and warmups and have a seat!

In △DEF, $\overline{DS}$, $\overline{FR}$, and $\overline{ET}$ are medians.

3. Find EV if $VT = 5$.
4. If $FR = 20.1$, what is the measure of $\overline{VR}$?

In △TUV, $\overline{TE}$, $\overline{UD}$, and $\overline{VC}$ are medians.

5. Find EV if $UV = 24$.
6. If $TC = 8$, find TU.
7. What is TD if $TV = 29$?
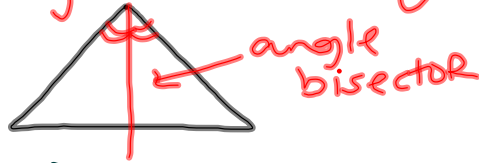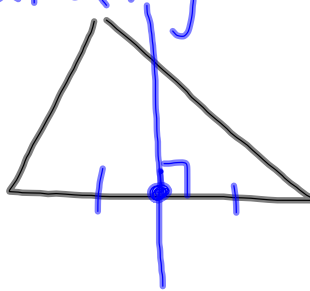
WWK:

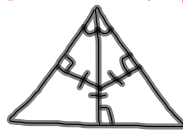<u>angle bisector</u> a segment that cuts an angle into 2 equal pieces.

angle bisector

<u>perpendicular bisector</u> – a segment that intersects the midpoint of a side at a right angle.

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TOC 45-46 Triangle Bisectors

Angle Bisector Theorem:
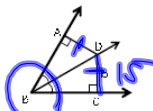If a line bisects an angle, then it is equidistant from the sides of the △.

Converse of the Angle Bisector Theorem:
If a point is equidistant from the side of a △, then the line bisects the angle.

$<ABD \cong <CBD$
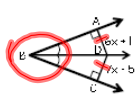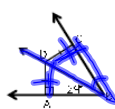
Example 1:
Find AD.

AD=15

Angle Bisector Theorem

Example 2:
Find the value of x.

$7x-5=6x+1$
$-6x \quad -6x$
$x-5 \quad 1$
$+5 \quad +5$
$\boxed{x=6}$

Example 3:
Find m∠CBD.

$29°$

Example 4:
Find the value of x.

$(19x+2)°$
$(25x-10)°$

Converse of the Angle Bisector Theorem

$19x+2=25x-10$
$-19x \quad -19x$
$2 \quad 6x-10$
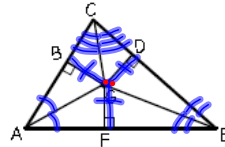$\frac{+10 \quad +10}{\frac{12}{6}=\frac{6x}{6}}$
$\boxed{x=2}$

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TOC 45-46 Triangle Bisectors

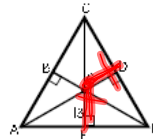* An angle bisector cuts the sides of the △ proportionally.

$$\frac{AB}{BC} = \frac{AD}{DC}$$

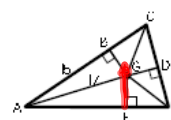**Incenter Theorem:** All 3 angle bisectors will meet at a point called the Incenter

Example 5: Find GD. Point G is the incenter.

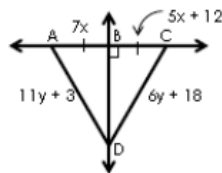**Example 6:** Find GF. Point G is the incenter.

BG = 8

13 = GD

GF = 8

Incenter Theorem

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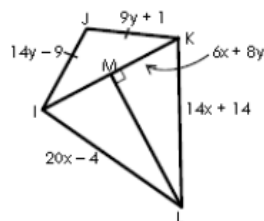# TOC 43-44 Triangle Bisectors

Use the Perpendicular Bisector Theorem

1. Find AB.   2. Find CD.

$7x$ $5x + 12$

$11y + 3$ $6y + 18$

3. Find EF.   4. Find GH.

$13y + 8$

$x + 39$

$7x - 3$ $9y + 24$

5. Find LK.   6. Find IL.

$9y + 1$
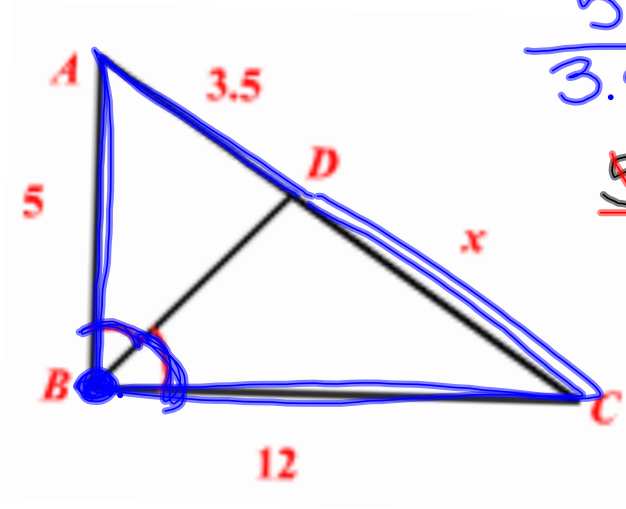
$14y - 9$ $6x + 8y$

7. Find JI.   8. Find KJ.

$14x + 14$

$20x - 4$

9. Find MK.   10. Find IM.

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Ex 1 (pg 43)   Find x (given angle bisector)

$$\frac{5}{3.5} = \frac{12}{x}$$
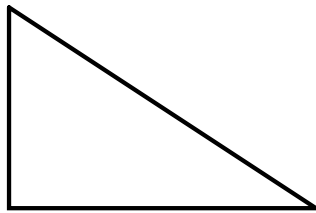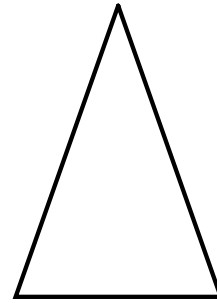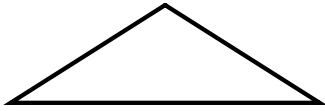
$$\frac{5x}{5} = \frac{42}{5}$$

$$\boxed{x = 8.4}$$

3.5

5

x

12

Ex 2 (pg 43)   Given AB = 15, BF = 5, CF = 4, and CD = 6. Find AC and CB

Ex 3 (pg 43) Construct the circumcenter on each type of triangle.

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Welcome!! Please grab your ISN and warmups and have a seat!

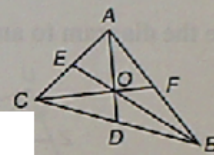| 6. $\overline{HJ}$ bisects $\angle H$. Calculate HF.	7. $\overline{BD}$ bisects $\angle B$. Calculate AD.	8. $\overline{SQ}$ bisects $\angle S$. Calculate SP.
F, 15 cm, J, 18 cm, G, 21 cm, H	C, 3 ft, B, 2 ft, 6 ft, D, A	P, 9 m, Q, 12 m, S, 18 m, R

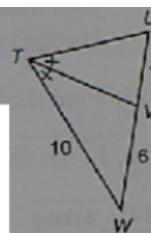|	bisect sides	always inside triangle	forms right angles	formed by medians	formed by altitudes	formed by angle bisectors	formed by perpendicular bisectors	outside triangle on obtuse	inside triangle on acute	connects to a vertex of an angle
Centroid										
Ortho center										
In center										
Circumce nter										

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Classswork

1. In $\triangle ABC$, $AD = 5$ and $EO = 4.2$.
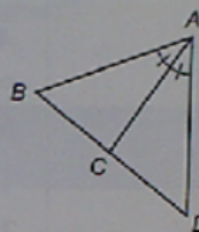   Use the Centroid Theorem to find the lengths of $\overline{OD}$ and $\overline{BE}$ to the nearest hundredth.

2. Where is the orthocenter of a right triangle located?

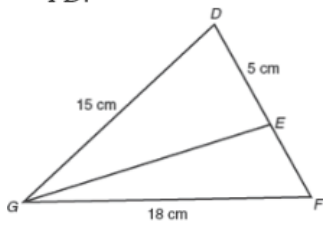3. Using the diagram at the right, find the length of $\overline{TU}$ if $UV = 4$, $TW = 10$, and $WV = 6$.

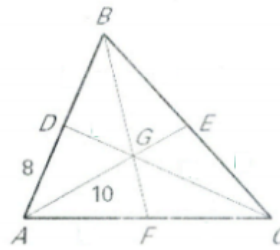4. Using the diagram at the right, find BC if $AD = 15$, $DC = 8$, and $AB = 20$.

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1 . $\overline{GE}$ bisects ∠G. Calculate FD.

Point G is the _centroid_ of △ ABC, AD = 8, AG = 10, BE = 10, AC = 16 and CD = 18. Find the length of each segment.

30. If Point G is the _centroid_, then Point G is the point of concurrency of

the _____.

31. DB =

32. EA =

33. CG =

34. BA =

35. GE =

36. GD =

37. BC =

38. AF =

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