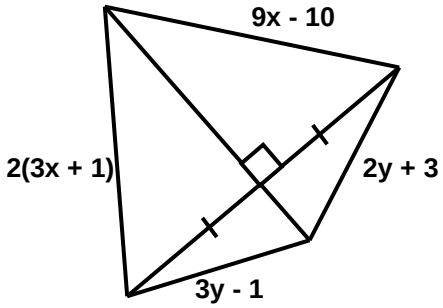
Independent Practice: **PERPENDICULAR BISECTORS IN TRIANGLES**

NAME: _____ DATE: _____ PERIOD: _____

For #'s 1-5, use the diagrams to solve for the unknown variables.

1. x = _____

   y = _____



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2. XS = _____

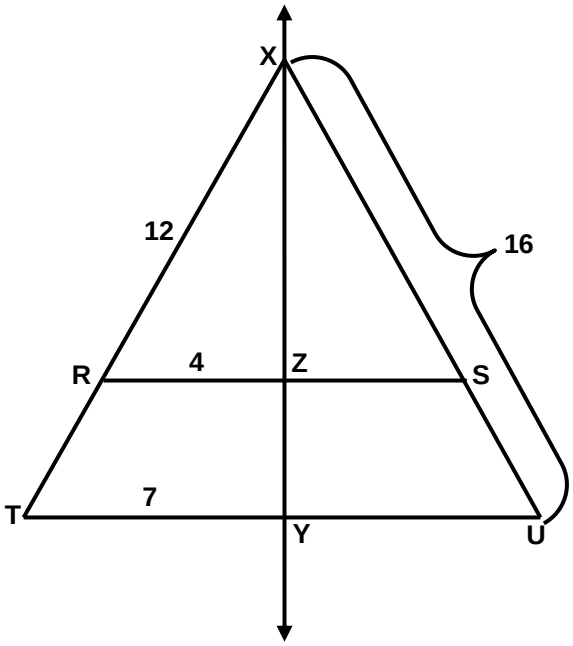
   XT = _____

   TU = _____

   ZS = _____

   TR = _____

$\overleftrightarrow{XY}$ *is a perpendicular bisector of* $\overline{RS}$ *and* $\overline{TU}$.



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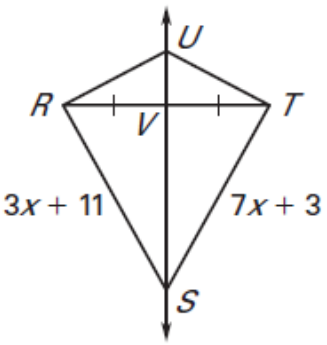
3. RS = _____

Find the length of $\overline{RS}$.



4. AB = _____

AE = _____

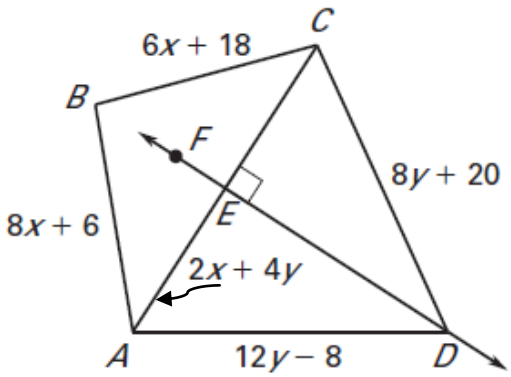
AD = _____

BC = _____

AC = _____

CD = _____

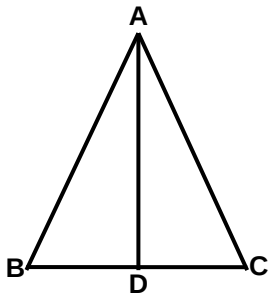
$\overline{DE}$ *is the perpendicular bisector of* $\overline{AC}$.



5. x = _____

y = _____

a. m∠ADB = (7x + 27)° Find x .



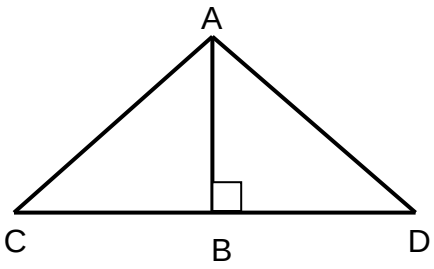
$\overline{AD}$ **is a perpendicular bisector of** $\overline{BC}$**.**

b. $\overline{BC}$ = (3y – 7), $\overline{BD}$ = (y + 3). Find y.

6. *Fill in the blanks for the following proof***.**

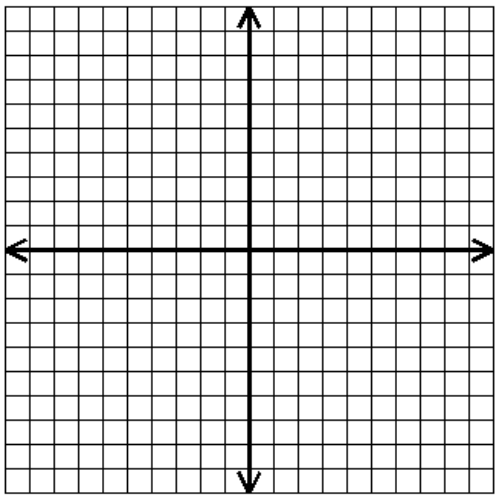
Proof of the Converse of the Perpendicular Bisector Theorem.

Given: $AC = AD,\ \overline{AB} \perp \overline{CD}$
Prove: $\overline{AB}$ is the perpendicular bisector of $\overline{CD}$



Statements	**Reasons**
1) $AC = AD$	
2) $\overline{AB} \perp \overline{CD}$	
3) $\angle$ABC and $\angle$ABD are right angles	
4) ΔABC and ΔABC are right triangles	
5) AB = AB	
6) $\Delta ABC \cong \Delta ABD$	
7) CB = DB	
8) $\overline{AB}$ is the perpendicular bisector of $\overline{CD}$	

7. a. Graph points A(1, 0) and B(7, 6) and draw segment AB.



b) What point does the perpendicular bisector intersect segment AB?

c) What is the slope of the perpendicular bisector of segment AB?

d) What is the equation of the perpendicular bisector of segment AB?

e) Graph the perpendicular bisector on the graph above.

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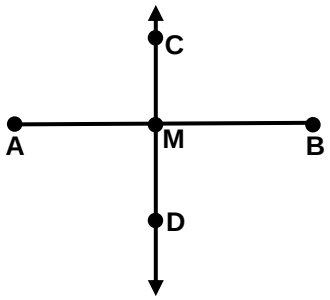
8. $\overleftrightarrow{CD}$ is a perpendicular bisector of $\overline{AB}$. *<u>Circle</u> the following <u>true</u> statements.*



A) M is the midpoint of $\overline{AB}$.

B) M is the midpoint of $\overline{CD}$.

C) Point C is equidistant from Points A and B.

D) If AC and BC were drawn ΔABC would be isosceles.

E) Point D is equidistant from Points A and B.