

## Warm Up

1. Solve:  $3x = 8x - 15$

$$\begin{array}{r} -8x - 8x \\ -\frac{5x}{-5} = -\frac{15}{-5} \end{array} \quad x = 3$$

2. Solve:  $6x + 3 = 8x - 14$

$$\begin{array}{r} -3 \quad -3 \\ 6x = 8x - 17 \\ -8x \quad -8x \\ -2x = -17 \\ \frac{-2x}{-2} = \frac{-17}{-2} \\ x = 8.5 \end{array}$$

3. If  $M$  is the midpoint of  $\overline{AB}$  Find  $AB$

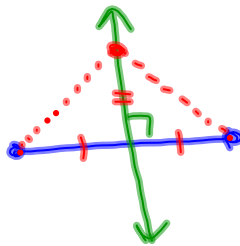
$AM = 5x - 2 \quad BM = 3x + 6$

$$\begin{array}{c} \text{A} \quad 18 \quad \text{M} \quad 18 \quad \text{B} \\ \begin{array}{r} 5x-2 \\ 3x+6 \end{array} \end{array}$$

$$\begin{array}{r} 5x-2 = 3x+6 \\ +2 \quad +2 \\ 5x = 3x+8 \\ -3x \quad -3x \\ 2x = 8 \\ x = 4 \end{array}$$

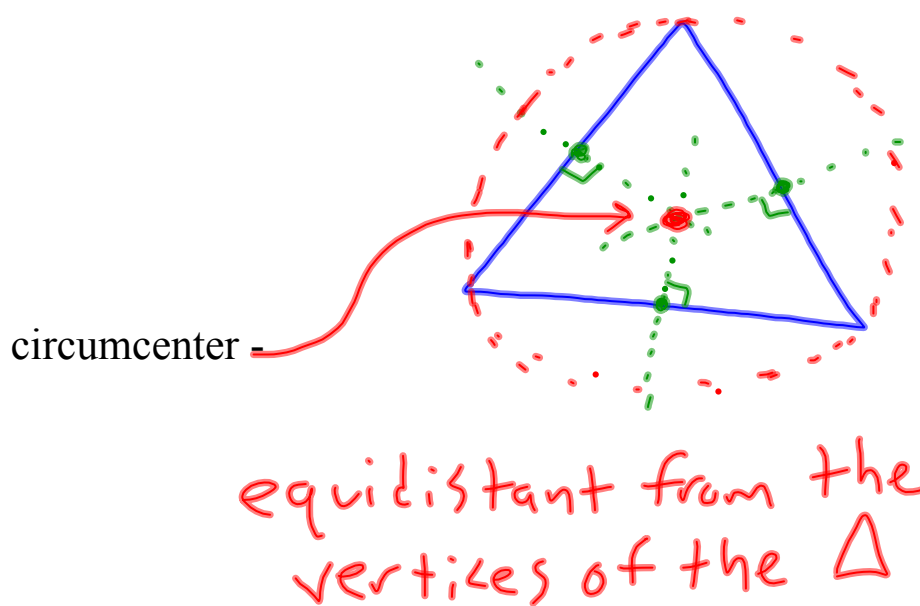
## 5-2 Perpendicular Bisectors

perpendicular bisector -

equidistant -

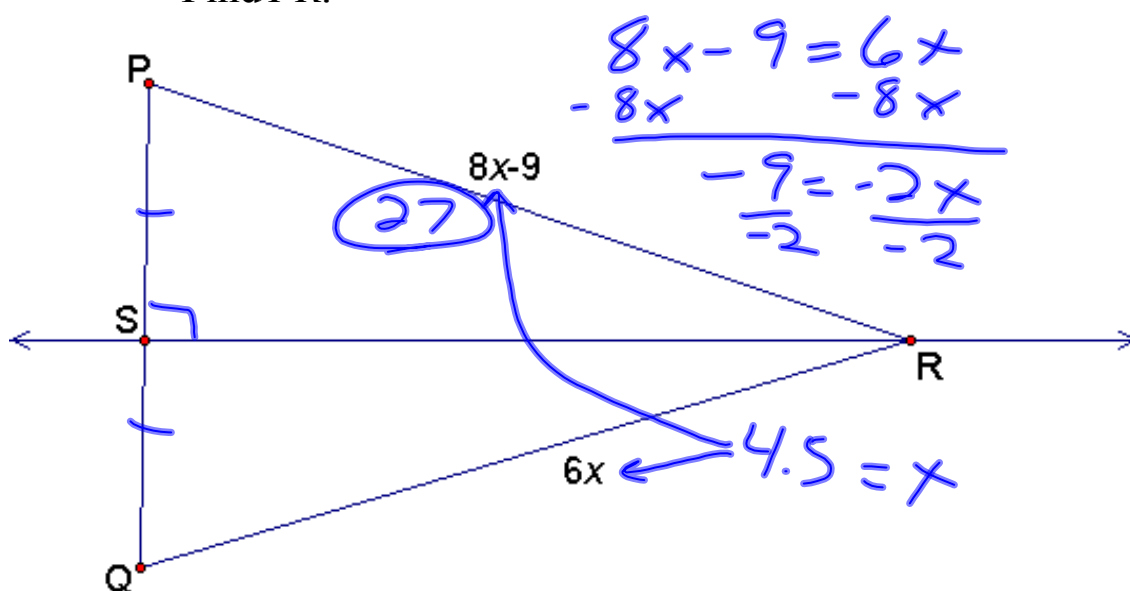
perpendicular bisector theorem - if a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints

concurrency of perpendicular bisectors of a triangle -

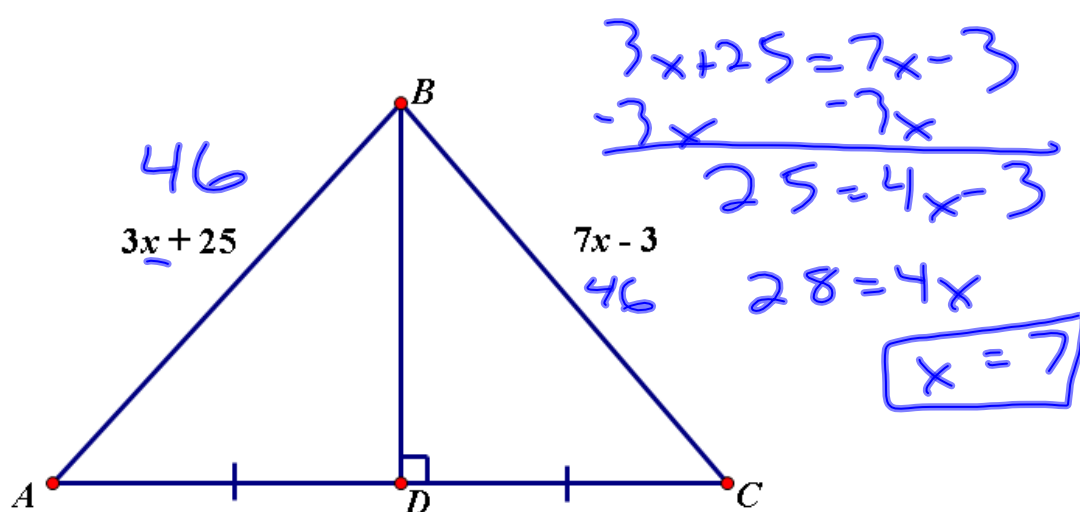


Ex 1

In the diagram,  $\overleftrightarrow{RS}$  is the perpendicular bisector of  $\overline{PQ}$ . Find  $PR$ .



Ex 2 Use the information given in the diagram to find  $AB$ .



Ex 3 In the diagram,  $\overleftrightarrow{JM}$  is the perpendicular bisector of  $\overline{HK}$ . Which lengths in the diagram are equal?

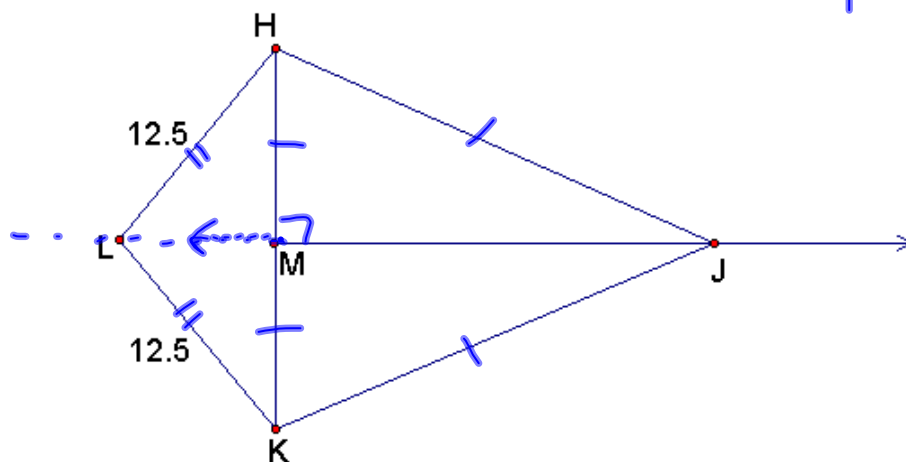
Is  $L$  on  $\overleftrightarrow{JM}$ ?

Yes

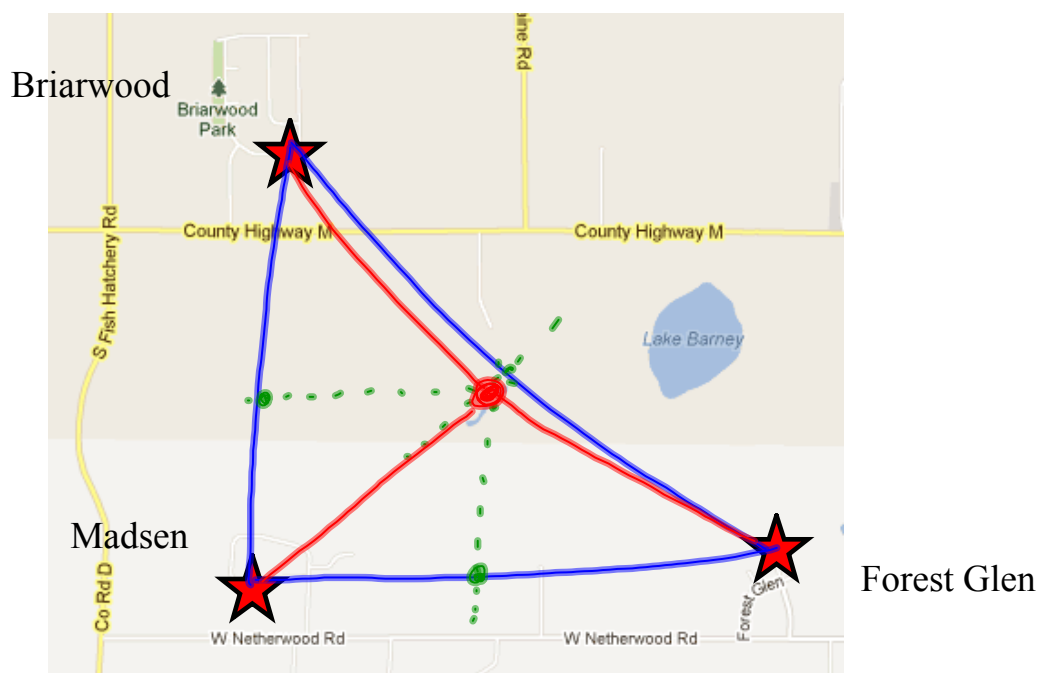
$$HM = MK$$

$$KJ = HJ$$

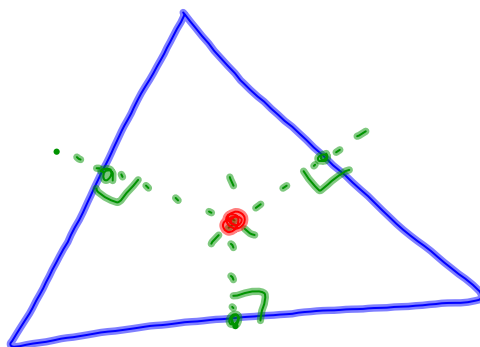
$$LK = LH$$



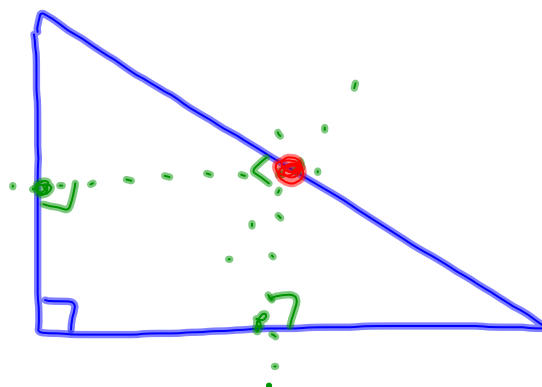
- Ex. 4 Oregon officials would like to build a new park that is the same distance from three neighborhoods. Where should park be located?



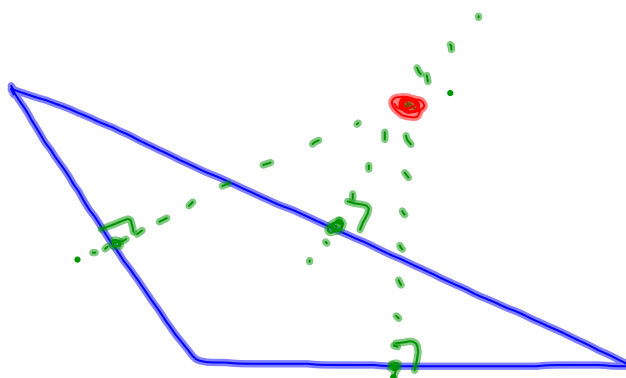
- Ex. 5 Draw an acute triangle, and draw the perpendicular bisectors of each side. Draw the circumcenter.



- Ex. 6 Draw a right triangle, and draw the perpendicular bisectors of each side. Draw the circumcenter.



- Ex. 7 Draw an obtuse triangle, and draw the perpendicular bisectors of each side. Draw the circumcenter.



Ex. 8      What conclusion can you make about the circumcenter of an acute, right, and obtuse triangle?