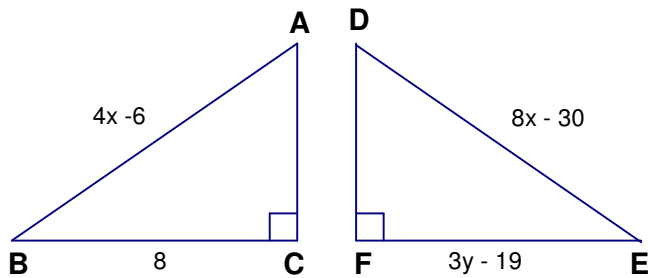


1. The measures of two vertical angles are  $(10x - 24)^\circ$  and  $2x^\circ$ . Find  $x$ .

2. Find the values of  $x$  and  $y$  so that  $\triangle ABC \cong \triangle DEF$  by HL



3. Write the following formulas:

A. Midpoint

B. Distance

C. Slope

4. A postulate is

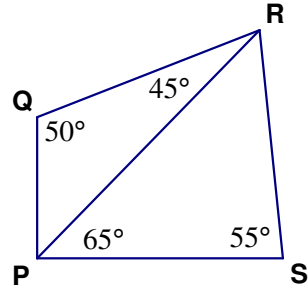
5. Match each.

- |                    |  |
|--------------------|--|
| _____ Orthocenter  | A. The point of concurrency of the three medians of a triangle.            |
| _____ Incenter     | B. The point of concurrency of the three $\perp$ bisectors of a triangle.  |
| _____ Circumcenter | C. The point of concurrency of the three $\angle$ bisectors of a triangle. |
| _____ Centroid     | D. The point of concurrency of the three altitudes.                        |

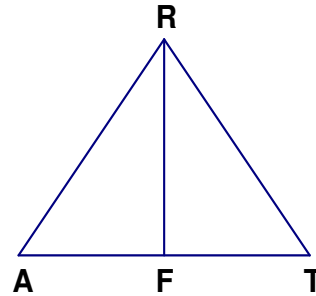
Determine the correct answer for each.

6. Where do the 3 medians of a triangle intersect?  
 A) inside the triangle B) Outside the triangle C) On the triangle D) Any of these
7. Where do the 3 altitudes of a triangle intersect?  
 A) inside the triangle B) Outside the triangle C) On the triangle D) Any of these

8. Find the longest side of PQRS.



9. Given:  $\overline{RF} \perp \overline{AT}$   
 F is a midpoint of  $\overline{AT}$   
 Prove:  $\angle ARF \cong \angle TRF$

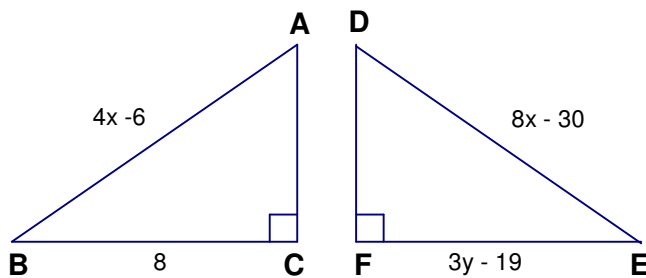


| Statements  | Reasons                   |
|---|---------------------------|
| 1. $\overline{RF} \perp \overline{AT}$            | 1. Given                  |
| 2. $\angle AFR$ and $\angle TFR$ are right angles | 2.                        |
| 3. $\angle AFR \cong \angle TFR$                  | 3.                        |
| 4. $\overline{RF} \cong \overline{RF}$            | 4.                        |
| 5.  | 5. Given                  |
| 6.  | 6. Definition of Midpoint |
| 7. $\triangle AFR \cong \triangle TFR$            | 7.                        |
| 8. $\angle ARF \cong \angle TRF$                  | 8.                        |

1. The measures of two vertical angles are  $(10x - 24)^\circ$  and  $2x^\circ$ . Find  $x$ .

$$\begin{aligned} 10x - 24 &= 2x \\ -24 &= -8x \\ 3 &= x \end{aligned}$$

2. Find the values of  $x$  and  $y$  so that  $\triangle ABC \cong \triangle DEF$  by HL



$$\begin{aligned} 4x - 6 &= 8x - 30 \\ 4x + 24 &= 8x \\ 24 &= 4x \\ 6 &= x \end{aligned}$$

$$\begin{aligned} 8 &= 3y - 19 \\ 27 &= 3y \\ 9 &= y \end{aligned}$$

3. Write the following formulas:

B. Midpoint

$$\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

B. Distance

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

C. Slope

$$\frac{y_2 - y_1}{x_2 - x_1}$$

4. A postulate is **a rule that is accepted without proof.**

5. Match each.

- |                |  |
|----------------|--|
| D Orthocenter  | A. The point of concurrency of the three medians of a triangle.            |
| C Incenter     | B. The point of concurrency of the three $\perp$ bisectors of a triangle.  |
| B Circumcenter | C. The point of concurrency of the three $\angle$ bisectors of a triangle. |
| A Centroid     | D. The point of concurrency of the three altitudes.                        |

Determine the correct answer for each.

6. Where do the 3 medians of a triangle intersect?

- A) inside the triangle B) Outside the triangle C) On the triangle D) Any of these

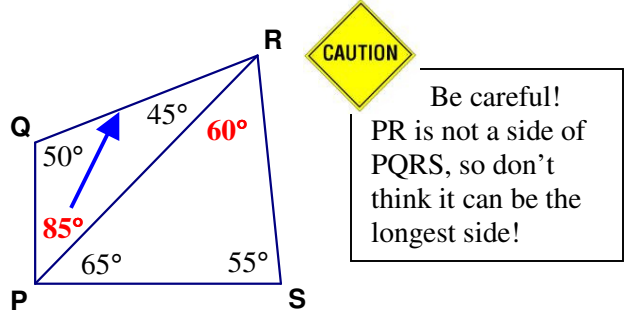
7. Where do the 3 altitudes of a triangle intersect?

- A) inside the triangle B) Outside the triangle C) On the triangle D) Any of these

8. Find the longest side of PQRS.

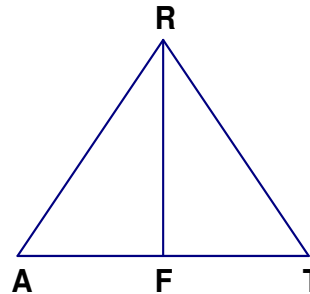
First, find the two missing angles

The longest side is across the largest angle ( $85^\circ$ )  $\rightarrow$   $\overline{QR}$ .



9. Given:  $\overline{RF} \perp \overline{AT}$   
F is a midpoint of  $\overline{AT}$

Prove:  $\angle ARF \cong \angle TRF$



| Statements  | Reasons   |
|---|---|
| 1. $\overline{RF} \perp \overline{AT}$            | 1. Given  |
| 2. $\angle AFR$ and $\angle TFR$ are right angles | 2. Def. Of Perpendicular Lines                                  |
| 3. $\angle AFR \cong \angle TFR$                  | 3. All right angles are congruent                               |
| 4. $\overline{RF} \cong \overline{RF}$            | 4. Reflexive Property of Segment Congruence                     |
| 5. F is a midpoint of $\overline{AT}$             | 5. Given  |
| 6. $\overline{AF} \cong \overline{FT}$            | 6. Definition of Midpoint                                       |
| 7. $\triangle AFR \cong \triangle TFR$            | 7. SAS  |
| 8. $\angle ARF \cong \angle TRF$                  | 8. Corresponding Parts of $\cong$ Triangles are $\cong$ (CPCTC) |

