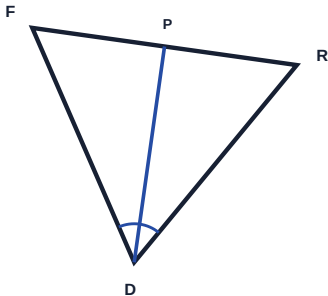


Triangle Angle Bisectors

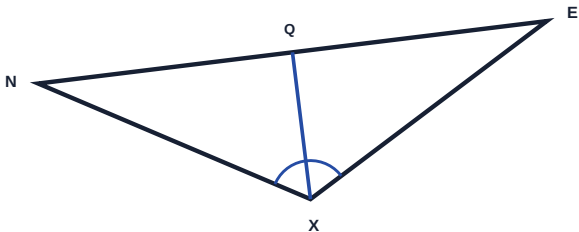
Use equal angle halves, perpendicular incenter distances, and right-triangle relationships to find each missing measure.

1. angle FDR = 63 deg. Find angle FDP.



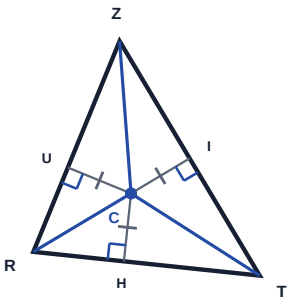
angle FDP = _____

2. angle NXQ = 60 deg. Find angle NXE.



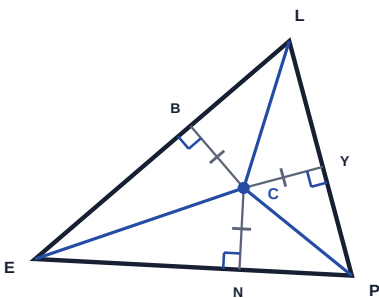
angle NXE = _____

3. CH = 6 and RC = 10. Find RH.



RH = _____

4. CN = 8 and EN = 20. Find EC.

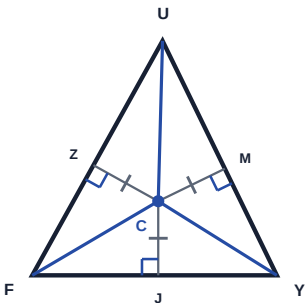


EC = _____

Triangle Angle Bisectors

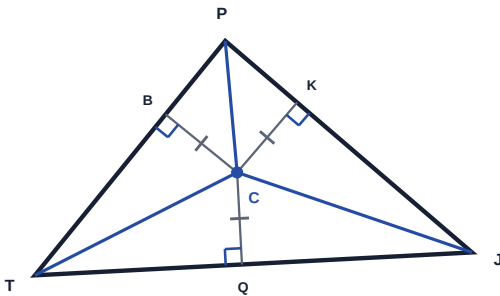
Use equal angle halves, perpendicular incenter distances, and right-triangle relationships to find each missing measure.

5. $CJ = 10$ and $FJ = 17$. Find FC .



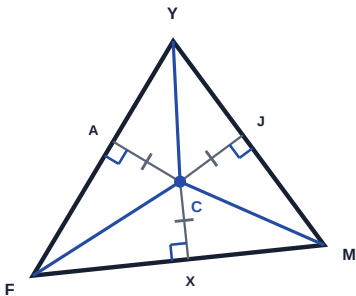
$FC =$ _____

6. $CQ = 4$ and $TQ = 9$. Find TC .



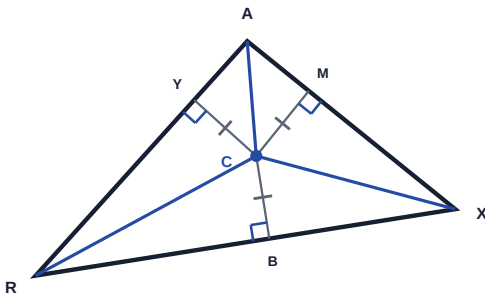
$TC =$ _____

7. $CX = 12$. Find CJ .



$CJ =$ _____

8. $CB = 4$ and $RC = 12$. Find RB .



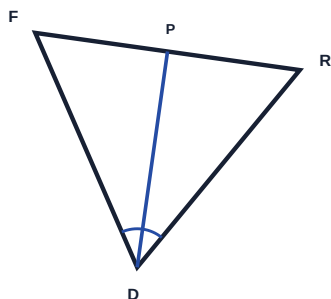
$RB =$ _____

Triangle Angle Bisectors

Worked Answer Key

Use equal angle halves, perpendicular incenter distances, and right-triangle relationships to find each missing measure.

1. angle FDR = 63 deg. Find angle FDP.

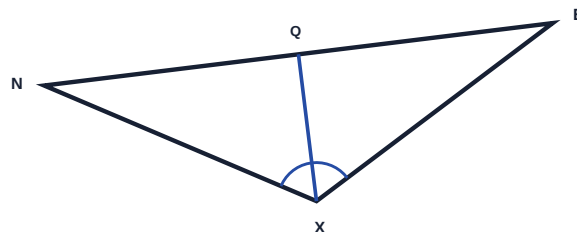


An angle bisector divides an angle into two equal angles.

$$63 / 2 = 63/2 \text{ deg.}$$

Answer: 63/2 deg

2. angle NXQ = 60 deg. Find angle NXE.

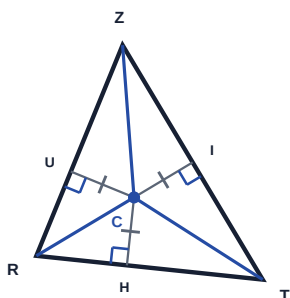


The two angle halves are equal.

$$60 + 60 = 120 \text{ deg.}$$

Answer: 120 deg

3. CH = 6 and RC = 10. Find RH.



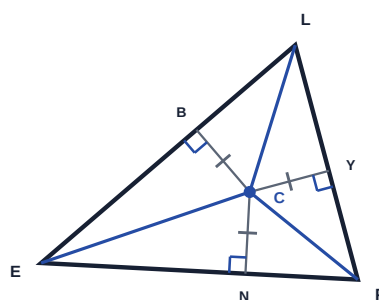
The incenter radius is perpendicular to the side, so this is a right triangle.

$$RH^2 = 10^2 - 6^2 = 64.$$

$$RH = 8 \text{ (approximately 8.00).}$$

Answer: 8

4. CN = 8 and EN = 20. Find EC.



The incenter radius is perpendicular to the side, so this is a right triangle.

$$EC^2 = 8^2 + 20^2 = 464.$$

$$EC = 4\sqrt{29} \text{ (approximately 21.54).}$$

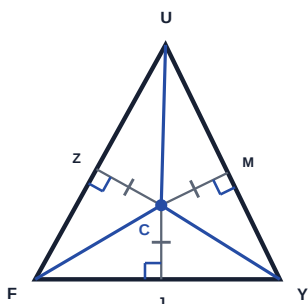
Answer: 4sqrt(29)

Triangle Angle Bisectors

Worked Answer Key

Use equal angle halves, perpendicular incenter distances, and right-triangle relationships to find each missing measure.

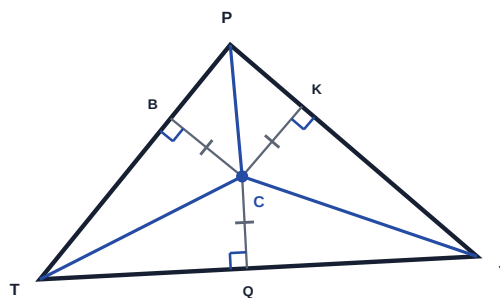
5. $CJ = 10$ and $FJ = 17$. Find FC .



The incenter radius is perpendicular to the side, so this is a right triangle.
 $FC^2 = 10^2 + 17^2 = 389$.
 $FC = \sqrt{389}$ (approximately 19.72).

Answer: $\sqrt{389}$

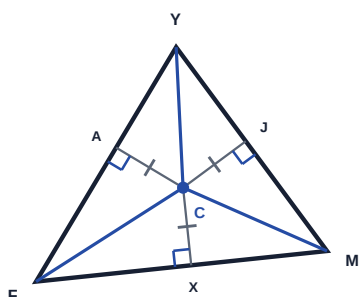
6. $CQ = 4$ and $TQ = 9$. Find TC .



The incenter radius is perpendicular to the side, so this is a right triangle.
 $TC^2 = 4^2 + 9^2 = 97$.
 $TC = \sqrt{97}$ (approximately 9.85).

Answer: $\sqrt{97}$

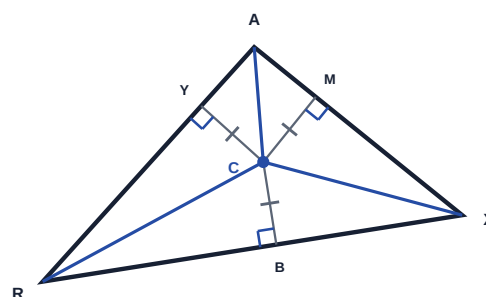
7. $CX = 12$. Find CJ .



An incenter is equally distant from all three sides.
 $CX = CJ = 12$.

Answer: 12

8. $CB = 4$ and $RC = 12$. Find RB .



The incenter radius is perpendicular to the side, so this is a right triangle.
 $RB^2 = 12^2 - 4^2 = 128$.
 $RB = 8\sqrt{2}$ (approximately 11.31).

Answer: $8\sqrt{2}$