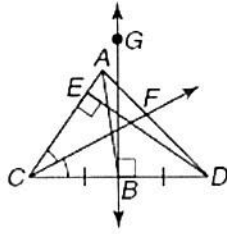


Name each of the following components of the triangle.

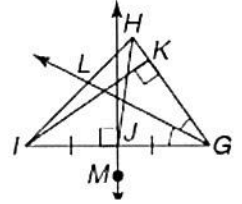
1.

- a. Altitude: \overline{ED}
 b. Angle Bisector: \overline{CF}
 c. Median: \overline{AB}
 d. Perpendicular Bisector: \overline{GB}



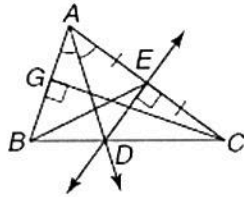
2.

- a. Altitude: \overline{IK}
 b. Angle Bisector: \overline{GL}
 c. Median: \overline{HJ}
 d. Perpendicular Bisector: \overline{MJ}



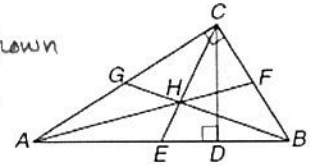
3.

- a. Altitude: \overline{GC}
 b. Angle Bisector: \overline{AD}
 c. Median: \overline{BE}
 d. Perpendicular Bisector: \overline{ED}



4. E is the midpoint of \overline{AB} , F is the midpoint of \overline{BC} , and G is the midpoint of \overline{AC} . If the concurrency is not shown, say so.

1. Centroid: H
 2. Circumcenter: not shown
 3. Incenter: not shown
 4. Orthocenter: C



Use the given information to answer each of the following

5. If N is the incenter of the triangle, find the value of x and justify your answer with a theorem, postulate, or definition.

$$NL^2 + 48^2 = 52^2 \text{ by incenter theorem}$$

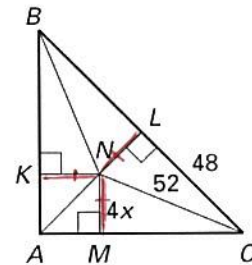
$$NL^2 + 2304 = 2704$$

$$NL^2 = 400$$

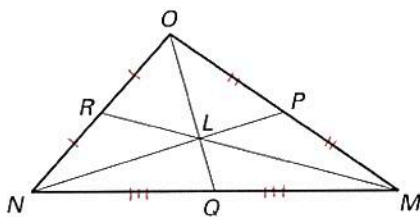
$$NL = 20$$

$$4x = 20$$

$$x = 5$$



6. If L is the centroid of the triangle and $NL = x + 4$ and $NP = 3x + 3$, find the value of x and justify your answer with a theorem, postulate, or definition.



$$NL = \frac{2}{3}(NP) \text{ by Centroid Theorem}$$

$$x+4 = \frac{2}{3}(3x+3)$$

$$x+4 = 2x+2$$

$$2 = x$$