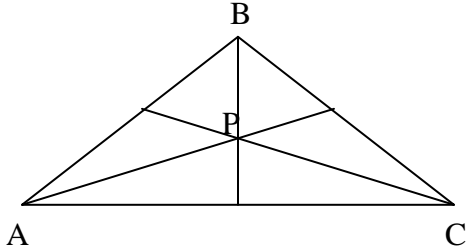


Incenter of a Triangle: the point where the triangle's angle bisectors intersect

Angle Bisector: a line segment with one endpoint at any vertex of the triangle, extending to the opposite side so that it bisects the vertex angle
: the angle bisector is a cevian

The angle bisectors of the angles of a triangle are concurrent at a point that is equidistant from the sides of the triangle. This point of concurrency is called the incenter.

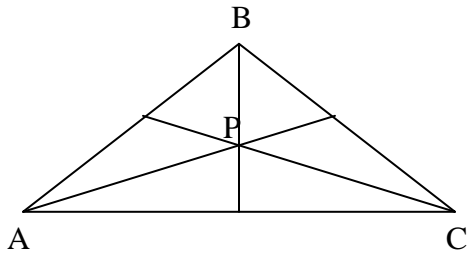


All 3 bisectors are concurrent at point P

Point P is equidistant from all 3 sides of the triangle

The incenter will always be found inside the Δ

The incenter and inscribed circle (circle drawn within a figure)



Draw ΔABC with all 3 angle bisectors drawn from each vertex

Label the incenter P

Since P is equidistant from each side of the Δ , we can drop perpendicular segments from P to each side (---) Label the points on the sides x,y,z

Point P can be considered the center of the circle and the \perp segments the radius

Now we have an inscribed circle

Exercise:

- 1) Consider equilateral triangle ABC. Find the lengths of the radius of the incenter if each side of the triangle measures 6 inches.

