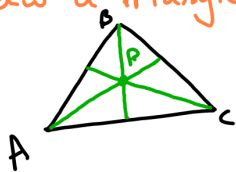


5.3b Concurrency of \angle Bisectors

Draw a triangle. Bisect each vertex angle.

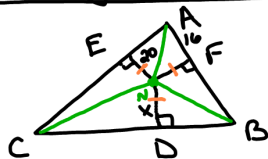


- * They intersect at P.
- * It is equidistant from the sides of the triangle.



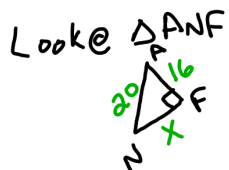
- * P is called Incenter
 - * The point of concurrency of 3 \angle bis.
- So $\overline{PF} \cong \overline{PE} \cong \overline{PD}$

Using the Incenter



Given N is the incenter of $\triangle ABC$.

Find ND
* Know $\overline{ND} \cong \overline{NE} \cong \overline{NF}$



Have right \triangle .

Use Pythagorean Theorem!

$$(\text{leg})^2 + (\text{leg})^2 = (\text{hyp})^2$$

$$x^2 + 16^2 = 20^2$$

$$x^2 + 256 = 400$$

$$\sqrt{x^2} \quad \begin{array}{r} -256 \\ \hline \end{array} \quad = \sqrt{144}$$

$$x = 12$$