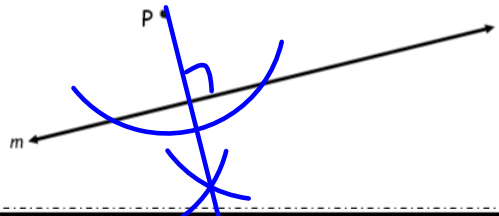
Name:_____ Date:_____

Period:_____

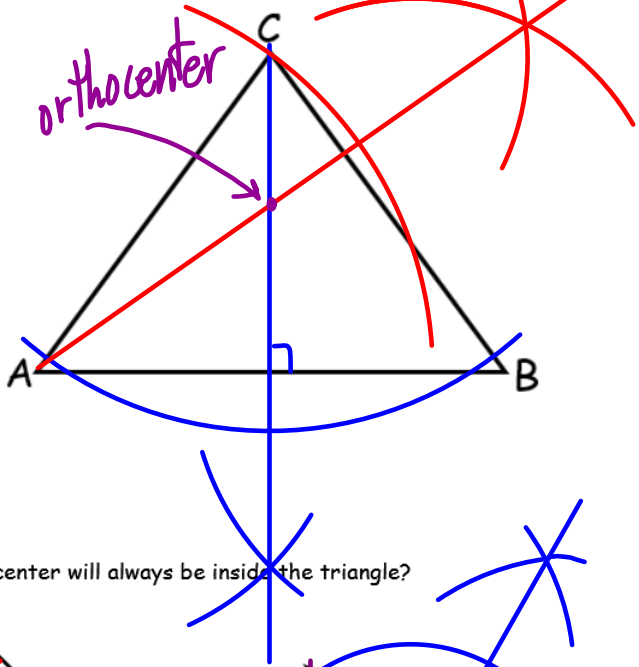
Aim: What is an orthocenter and an incenter?

Do Now: Construct a perpendicular line to line *m* through point P

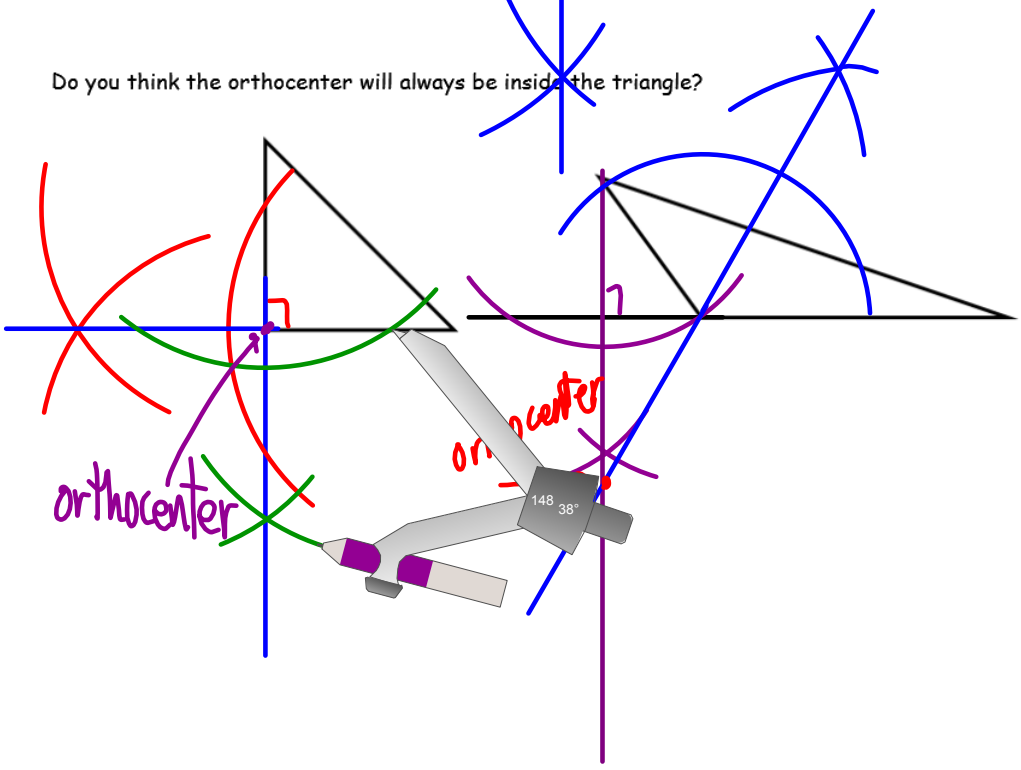


Orthocenter - where the altitudes of a △ meet
- acute △ inside obtuse △ - outside right △ on the right ∢

Construct the orthocenter of ΔABC:

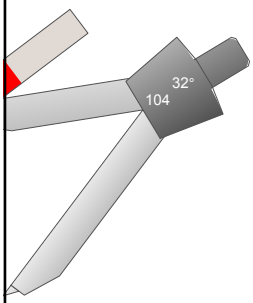


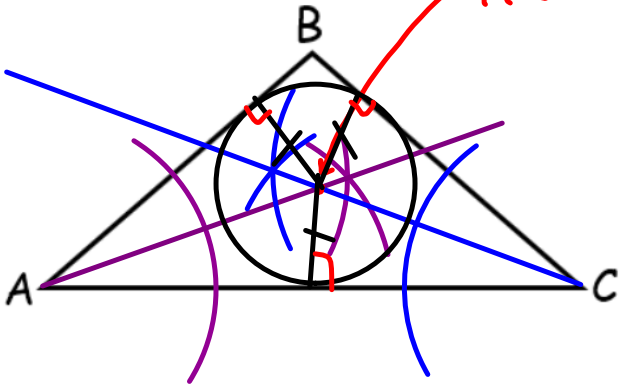
Do you think the orthocenter will always be inside the triangle?



Incenter - where the ∠ bisectors meet
- always inside the △.
- equidistant from all 3 sides of the △
- center of incircle or inscribed circle

Construct the incenter of ΔABC:

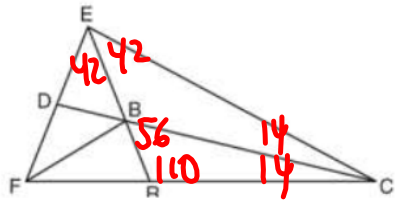




∠ bisectors

Practice Problems

1. In the diagram below, point B is the incenter of ΔFEC, and $\overline{EBR}$, $\overline{CBD}$, and $\overline{FB}$ are drawn.

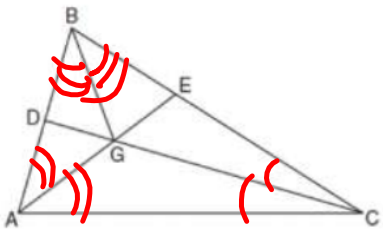


42 + 14 = 56 ; 180 − 56 = 124 ; 180 − 124 = 56

If $m\angle FEC = 84$ and $m\angle ECF = 28$, determine and state $m\angle BRC$.

56 + 14 = 70 ; 180 − 70 = 110

2. In the diagram below of ΔABC, $\overline{CD}$ is the bisector of $\angle BCA$, $\overline{AE}$ is the bisector of $\angle CAB$, and $\overline{BG}$ is drawn.



Which statement must be true?

1) $DG = EG$
2) $AG = BG$
3) $\angle AEB \cong \angle AEC$
4) $\angle DBG \cong \angle EBG$

Medians
Centroid
Altitudes
Orthocenter
Angle
Bisectors
Incenter
Perpendicular
Bisector
Circumcenter

Oct 10-12:16 PM