

# The Nine-Point Circle.

If you have time, do the following construction twice: first with  $\triangle RST$  acute, and then with  $\triangle RST$  obtuse.

The construction is as follows:

- Draw scalene triangle  $RST$ .
- Find circumcenter  $C$ , and orthocenter  $O$ .
- Draw the Euler line  $OC$ .
- Find the midpoints of  $RO$ ,  $SO$ , and  $OT$ , and label them  $H$ ,  $G$ ,  $I$ , respectively.
- Label the feet of the altitudes on  $\triangle RST$  as  $A$ ,  $B$ ,  $E$ .
- Label the midpoints of the sides of  $\triangle RST$  as  $L$ ,  $M$ ,  $P$ .
- Label midpoint of  $OC$  as  $N$ .
- With  $N$  as the center, you can now draw a circle that passes through  $A$ ,  $B$ ,  $E$ ,  $H$ ,  $G$ ,  $I$ ,  $L$ ,  $M$  and  $P$ !