

Practice 6-7

Proofs Using Coordinate Geometry

1. Given $\triangle HAL$ with perpendicular bisectors i , b , and m , complete the following to show that i , b , and m intersect in a point.

a. The slope of \overline{HA} is $\frac{-q}{p}$. What is the slope of line i ?

b. The midpoint of \overline{HA} is (p, q) . Show that the equation of line i is $y = \frac{p}{q}x + q - \frac{p^2}{q}$.

c. The midpoint of \overline{HL} is $(r + p, 0)$. What is the equation of line m ?

d. Show that lines i and m intersect at $(r + p, \frac{rp}{q} + q)$.

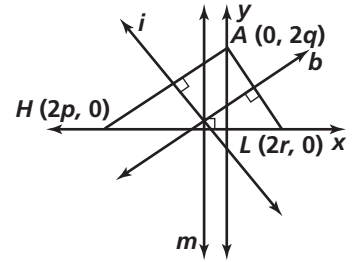
e. The slope of \overline{AL} is $\frac{-q}{r}$. What is the slope of line b ?

f. What is the midpoint of \overline{AL} ?

g. Show that the equation of line b is $y = \frac{r}{q}x + q - \frac{r^2}{q}$.

h. Show that lines b and m intersect at $(r + p, \frac{rp}{q} + q)$.

i. Give the coordinates for the point of intersection of i , b , and m .



Complete Exercise 2 without using any new variables.

2. $RHCP$ is a rhombus.

a. Determine the coordinates of R . _____

b. Determine the coordinates of H . _____

c. Find the midpoint of \overline{RH} . _____

d. Find the slope of \overline{RH} . _____

