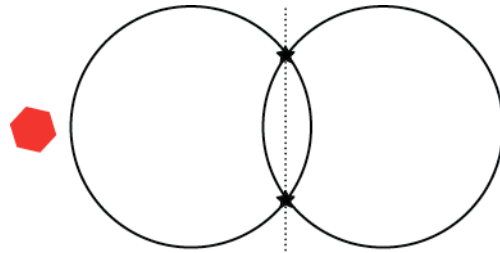


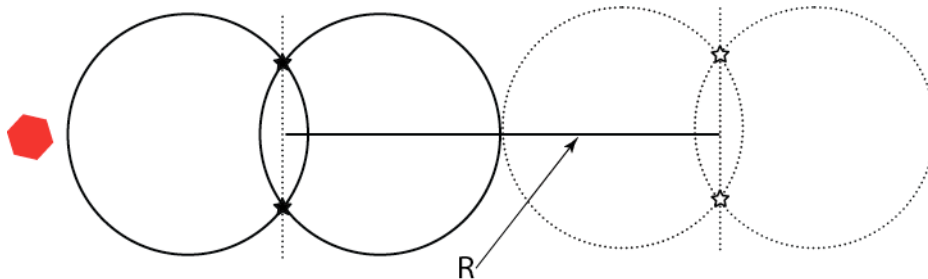
Consider the following dual-Doppler network for the study of convective storms:



Two radars, indicated by the stars, are spaced 40 km apart. The two circles should be interpreted as representing dual-Doppler lobes defined by a  $30^\circ$  radar beam crossing.

Assume a constant storm motion of  $10 \text{ m s}^{-1}$  toward the east. The “storm” (red polygon) is entering the west edge of the western lobe at the time shown.

(a) Determine the total time the storm will remain in the dual-Doppler lobes. Be sure to subtract out the time the storm will exist within the intersection of the two circles.



(b) Assume now a network of four radars, spaced as shown above. Compute the separation distance  $R$  between the two pairs of radars, such that the storm will remain continuously within dual-Doppler lobes formed by the four radars.