1. Two speakers connected to the same signal generator produce interference.
   At position P, exactly midway between the speakers, a maximum sound is heard.
   The next maximum at position Q is 1.8m from speaker 1 and 1.5m from speaker 2.

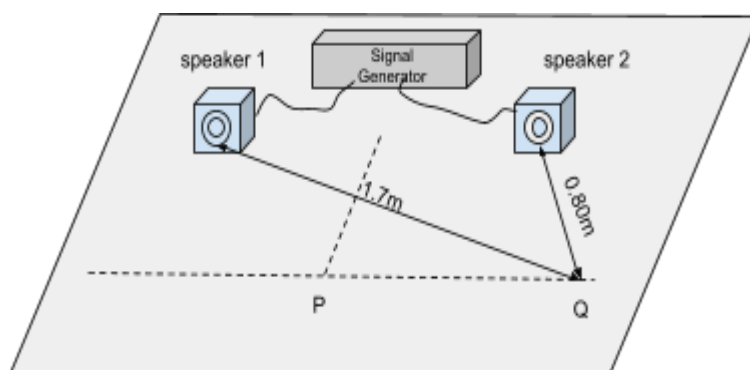   Find the wavelength of the sound from the speakers.
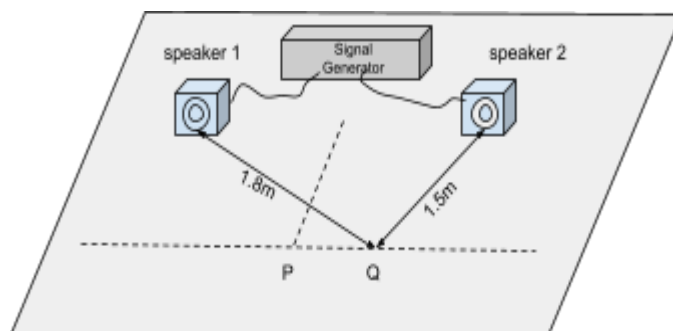
2. Two speakers connected to the same signal generator produce an interference pattern.
   At position Q a student hears a third maximum sound from the central maximum sound at P.
   Speaker 1 to Q = 1.7m
   Speaker 2 to Q = 2.5m

   Find the wavelength of the sound from the speakers.
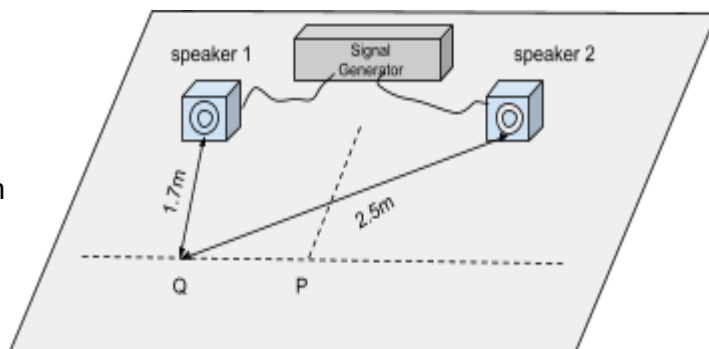
3. Two speakers connected to the same signal generator produce an interference pattern.
   A third loud sound from position P is heard at position Q.
   Speaker 1 to position Q = 1.7m
   Speaker 2 to position Q = 0.8m

   a. Find the wavelength of the sound produced by the speakers.
   b. If the speed of sound is 340 ms^{-1} then calculate the frequency of the sound.

4. A source of microwaves is placed behind a metal barrier with two slits R and S.
   At position P a microwave detector reads a maximum. When the detector is moved from P to Q it detects a second maximum reading.

   RQ = 90cm
   SQ = 84cm

   a. Find the wavelength of the microwave source.
   b. Calculate the frequency of the microwave source.

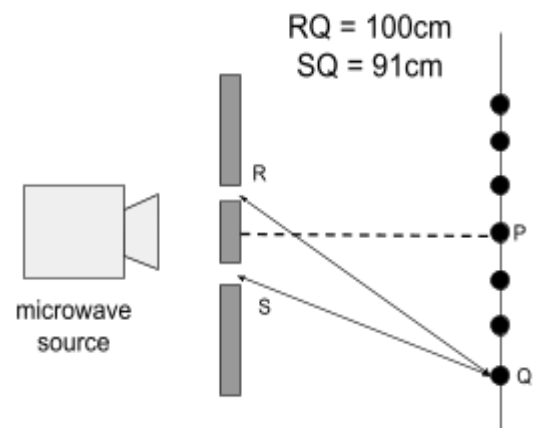   microwave source

   R

   P

   S

   Q
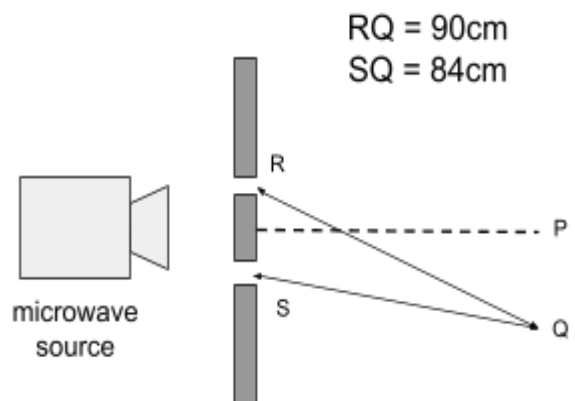
5. A student places a barrier with two gaps in front of a microwave source.
   She moves a detector along a line parallel to the barriers and marks the positions where the detector reads maxima.
   At one such maxima Q the distances from each gap to Q are shown.

   RQ = 100cm
   SQ = 91cm

   microwave source

   R

   P

   S

   Q

   a. Calculate the wavelength of the microwaves.
   b. Find the frequency of the microwave source.

6. A microwave source is placed in front of a metal barrier with two narrow gaps.
   A microwave detector picks up a series of maxima and minima readings.
   The maxima readings are marked with a black dot and the minima are marked with a white dot.

   RQ = 100cm
   SQ =106cm

   microwave source

   R

   Q

   P

   S

   a. Explain how the maxima and minima are formed.
   b. From the information on the diagram find the wavelength of the microwaves.
   c. What would the size of the path difference 2nd maximum reading?