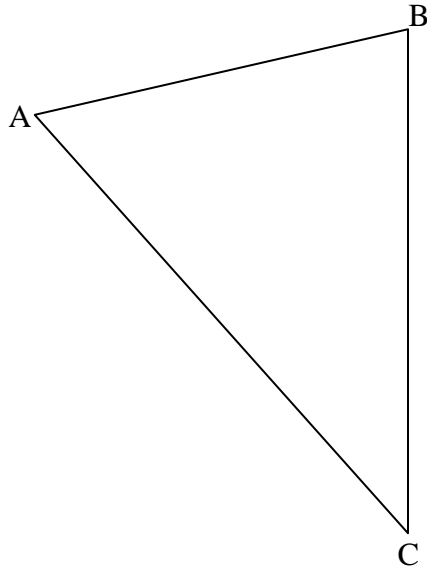


## Trigonometry

### Solving Triangles & Centers of Triangles: Radio Transmitter Problem

The diagram below represents the centers of three towns, Anston (A), Bakersfield (B) and Chester (C) which are linked by straight roads. Bakersfield is 26 km from Anston and 10 km further north, and Chester is 42 km due south of Bakersfield.



- (a) How far east of Anston is Bakersfield?
- (b) Find the distance between Anston and Chester?
- (c) The range of "Radio Bakersfield", broadcast from point B, is such that it can be heard at **only one** point P on the Anston-Chester road.
  - (i) Find the distance from point A to point P.
  - (ii) Find the range of "Radio Bakersfield" (the distance from point B to point P).
- (d) A new transmitter is to be set up at E, a point equidistant from the three towns. Describe where point E should be and how far is E from each town.