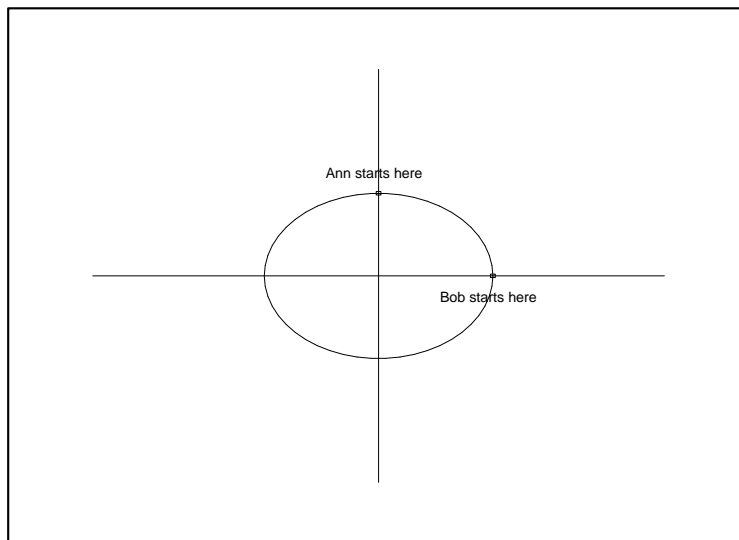


### Math 120 Winter 2001 Quiz 4

**Problem 1** Ann and Bob are test driving vehicles counterclockwise around a circular track of radius 2 km. Bob has linear speed of  $30\pi$  km/hour Ann has angular speed of  $12\pi$  rad/hour . They start at the locations pictured below:



a) What is Bob angular speed , in rad/hour?

b)Where is Ann located after 10 seconds? Give her coordinates.

c)How far has Ann travelled after 10 seconds ? (That is, find the distance she has travelled, in km).

d)What is the distance between Bob and Ann after 10 seconds ?

e) Who eventually passes whom ? When does it happen ?

**Problem 2** Find the coordinates of the point P in the picture. The angle  $u$  measures 0.5 rad, and the circle has radius 1.

