

Lesson 4

Read Chapter 4

Linear modeling

Lines and Circles word problems

Clue words: LINEAR , CONSTANT RATE

Goal: find the equation of a line and use it to answer questions in the problem

Yearly resident tuition at the UW was \$1827 in 1989 and \$2907 in 1995. Assume tuition increases at a constant rate. When will tuition be \$20000 a year ?

A crop dusting airplane flying a constant speed of 120mph is first spotted 2 miles South and 1.5 miles East of the center of circular irrigated field. The irrigated field has radius 1 mile. The plane flies in a straight line to a point 1 mile West of the center of the irrigated field.

Find the location A where the crop duster enters the airspace above the field

When does the plane first enter the airspace above the field ?
(Assume time $t=0$ corresponds to when the plane is first spotted)

How much time does the plane spend flying over the irrigated field?

How close does the plane get to the center of the field?

Where should the plane enter the field if we want it to get 0.5 miles to the center (still flying in a straight path), but no closer?