**Name: Date:**

**Chapter 6 - Systems of Equations - Applications**

**Advanced Algebra**

**Break-Even Analysis**

1. The demand and supply functions for a certain type of calculator are given by:

 Demand equation

 Supply equation

Where *p* is the price in dollars and *x* represents the number of units. Find the point of equilibrium for this market.

**State Population**

1. From 1985 to 1993 the population of Arizona was increasing at a faster rate than the population of South Carolina. Models that approximate the population P are:

P = 2785.8 + 88.8t

P = 3079.3 + 42.9t

According to these two models, during which year would you expect the population of

Arizona to be the same as the population of South Carolina?

The total cost of producing units of a product typically has two components – the initial cost and the cost per unit. When enough units have been sold so that the total revenue equals the total cost, the sales are said to have reached the **break-even point**.

You will find that the break-even point corresponds to the point of intersection of the cost and revenue curves.

1. A small business invests $10,000 in equipment to produce a product. Each unit of the product costs $0.65 and is sold for $1.20. How many items must be sold before the business breaks even?

Let

Total Cost =

C =

Total Revenue =

R =