Solving Equations Involving Exponents

The volume of cylindrical storage container with volume 5000 cm^3 has a radius equal to its height. The volume, V, is related to the radius according to the equation $V = \pi r^3$. Determine the radius and height of the container to the nearest tenth of a metre.
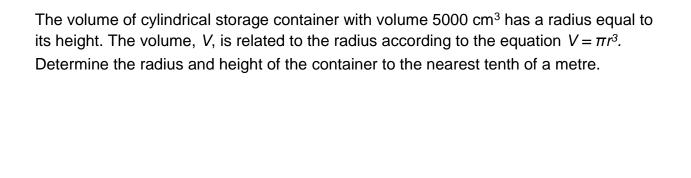
Lena has inherited $1000. She decides to invest the money in an account that pays 7.5% interest per year, compounded annually. The amount of the account, A, can be determined using the equation $A = 1000(1.075)^n$, where n is the number of years the money is invested. Approximately how many years will it take Lena's money to double?

The populations of two towns, Trenton and Belleville, are each described by an equation described by an equation relating population, p, in thousands, to time, d, in decades following the year 1950.

Trenton: $p = 5 \times 2^d$

Belleville: $p = 3^d$

a. Describe how the population in each town is changing.

b. What was the population of each town in 1950?

c. When will the towns have the same population? What is the population?