Answer on Question #71328 – Math – Algebra

Suppose that a company's sales were $5,000,000 three years ago. Since that time sales have grown at annual rates of 10 percent, – 10 percent, and 25 percent.

Question

(a) Find the geometric mean growth rate of sales over this three-year period. (Round your answer to 2 decimal places Omit the "%" sign in your response.)

Solution

(a) To find the geometric mean over this three-year period, we plug in the values for the yearly return rates into the equation for the geometric mean.

$n = \text{number of years}$

$R_1 = 0.10$

$R_2 = -0.10$

$R_3 = 0.25$

$R_g = \sqrt[n]{(1+R_1)(1+R_2)\dots(1+R_n)} - 1$

$R_g = \sqrt[3]{(1+0.1)(1-0.1)(1+0.25)} - 1$

$= \sqrt[3]{(1.1)(0.9)(1.25)} - 1$

$\approx 1.0736146 - 1$

$= 0.0736146$

≈ 0.07

Question

(b) Find the ending value of sales after this three-year period. (Do not round intermediate calculations and round your final answer to nearest dollar amount. Omit the "$" sign in your response.)

Solution

(b) The value of the investment after three years is

$$5000000(1.1)(0.9)(1.25) \approx 6187500$$