

Answer on Question #79352 – Math – Financial Math

Question

You invest R20000 at rate of 10% per annum. After how many years will investment grow to value of R28 000 if interest earned is compounded?

Solution

Investment if interest is compounded

$$A = P(1 + i)^n$$

$$A = 28\ 000$$

$$P = 20\ 000$$

$$i = 0.1$$

$$28\ 000 = 20\ 000 (1 + 0.1)^n$$

$$\frac{28\ 000}{20\ 000} = \frac{20\ 000}{20\ 000} (1 + 0.1)^n$$

$$(1 + 0.1)^n = 1.4$$

$$\ln(1 + 0.1)^n = \ln 1.4$$

$$n \ln 1.1 = \ln 1.4$$

$$n = \frac{\ln 1.4}{\ln 1.1}$$

$$n = 3.53$$

Answer: after 4 years.