

Answer on question 39695 – Math – Algebra

You have won the Karnataka state lottery. Lottery officials offer you the choice of the following alternatives payouts:

Alternative 1: Rs. 10 million one year from now Alternative 2 Rs. 20 million five years from now. Which alternative should you choose if the discount rate is

- a) 0 percent
- b) 10 percent
- c) 20 percent

Solution

Suppose that you choose alternative 1 and give it to the bank. Then if

- a) The discount rate is 0 percent after 4 years you will have the 1 million. In this case it is better to choose the second alternative;
- b) The discount rate is 10 percent and after 4 years you will have
$$A = A_0(1 + r)^n = 10 * 1.1^4 = 14.641$$
 million. It is less than 20 million. The alternative 2 is still better;
- c) The discount rate is 20 percent and after 4 years you will have
$$A = A_0(1 + r)^n = 10 * 1.2^4 = 20.736$$
 million. It is greater than 20 million. The alternative 1 is better;

Answer: a) Alternative 2;

- b) Alternative 2;
- c) Alternative 1.