

TOPIC

Economics – Section VI – Question 5

QUESTION

Your bank pays a 2.5% interest on the amount in a savings account every three months. If you invested \$2,000 in this account, the money you would have at the end of three years most nearly is

- (A) \$2,000
- (B) \$2,690
- (C) \$3,000
- (D) \$3,300

HINT

Effective interest rate takes compounding into consideration.
Use the effective interest rate to find the future worth of the investment.

SOLUTION

$$i = 2.5\%$$

$$m = \text{number of compounding per year} = 4$$

Nominal interest rate is the annual interest ignoring compounding

$$r = 2.5 \times 4 = 10\%$$

Effective interest rate takes compounding into consideration

Effective interest rate per year

$$= e^r - 1$$

$$= e^{0.1} - 1$$

$$= 1.1052 - 1$$

$$= 0.1052$$

$$= 10.52\%$$

Use the effective interest rate to find the future worth of the investment.

$$F = P(F/P, i, n)$$

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

$$= 2000(1 + 0.1052)^3$$

$$= \$2,700$$

Alternatively,

$$F = 2000(1 + 0.025)^{12} = \$2,690$$

ANSWER

(B)

CONTRIBUTOR

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