

Answer on Question #80347 - Economics / Economics of Enterprise

**QUESTION: You have \$10,000 dollars and want to invest them in the best possible option.**

- **Bank A offers to pay 4.1% compounded quarterly**
- **Bank B offers to pay 4% interest, compounded monthly**
- **Bank C offers to pay 4.1% compounded semesterly**

**Additionally, petrol/ transport costs to deposit and to collect the money are:**

- **Bank A is online (assume free)**
- **Bank B is \$15 per trip**
- **Bank C \$12 per trip.**

**If you are planning to leave the money in the bank for three years, what option is the best ?**

**ANSWER.**

The formula for annual compound interest, including principal sum, is:

$$A = P (1 + r/n)^{(nt)}$$

**Where:**

**A** = the future value of the investment/loan, including interest

**P** = the principal investment amount (the initial deposit or loan amount)

**r** = the annual interest rate (decimal)

**n** = the number of times that interest is compounded per year

**t** = the number of years the money is invested or borrowed for

1. For bank A: compounded quarterly using the formulae you get:

$$A = \$10,000(1 + 0.041/3)^{3*3}$$

$$A = \$11,299.43$$

2. For bank B... compounded monthly

$$A = \$10,000(1 + 0.04/12)^{12*3}$$

$$A = \$11,272.72$$

3. For bank C... compounded semesterly

$$A = \$10,000(1 + 0.041/6)^{6*3}$$

$$A = \$11,304.11$$

**Petrol/ transport costs to deposit and to collect the money**

Bank A is free therefore no cost.

$$\text{Total} = \$11,299.43$$

Bank B is \$15 per trip (2 trips, deposit and withdraw)

$$\text{therefore } \$11,272.72 - (\$15 * 2) = \$11,242.72$$

Bank C \$12 per trip (2 trips, deposit and withdraw)

$$\text{therefore } \$11,304.11 - (\$12 * 2) = \$11,280.11$$

**The best option is bank A which is \$11,299.43**

Answer provided by <https://www.AssignmentExpert.com>