

How much do I need to put in the bank today if I want to have \$1,000 in 3 years, the bank pays interest at 10% compounded annually?

$$PV = \frac{1,000}{(1.10)^3}$$

$$PV = 751.31 *$$

with calculator:

2nd CLR TVM
 1000 FV
 3 N
 10 I/Y
 CPT PV 751.31

* If your calculator is set to 2 decimal places there will be a rounding difference. $(1.03)^3$ is equal to 1.331.
 $1,000 \div 1.331 = 751.31$
 This will happen when using the formula unless you change the decimal places in the calculator.

How much do I need to put in the bank today if I want to have \$1,000 in 3 years, the bank pays interest at 10% compounded semi-annually?

$$PV = \frac{1,000}{(1.05)^6}$$

$$PV = 746.22$$

2nd CLR TVM
 1000 FV
 3 x 2 = N OR 6 N
 10 ÷ 2 = I/Y OR 5 I/Y
 CPT PV 746.22

How much do I need to put in the bank today if I want to have \$50,000 in 10 years, the bank pays interest at 16% compounded quarterly?

$$PV = \frac{50,000}{(1.04)^{40}}$$

$$PV = 10,414.45$$

2nd CLR TVM
 50000 FV
 10 x 4 = N OR 40 N
 16 ÷ 4 = I/Y OR 4 I/Y
 CPT PV 10,414.45

Opportunity cost is the price of the next best thing you could have done had you not made your first choice.

1) How much do you need to put in the bank if you want to have \$1,000,000 in 5 years, bank pays interest at 4% compounded annually?

with calculator:

$$PV = \frac{1,000,000}{(1.04)^5}$$

$$PV = 821,927.11$$

2nd CLR TVM
 1,000,000 FV
 5 N
 4 I/Y
 CPT PV 821,927.11

2) Compounded semi-annually?

$$PV = \frac{1,000,000}{(1.02)^{10}}$$

$$PV = 820,348.30$$

2nd CLR TVM
 1,000,000 FV
 5 x 2 = N OR 10 N
 4 ÷ 2 = I/Y OR 2 I/Y
 CPT PV 820,348.30

3) How much if you want to have \$100,000 in 15 years, the bank pays interest at 8% compounded annually?

$$PV = \frac{100,000}{(1.08)^{15}}$$

$$PV = 31,524.17$$

2nd CLR TVM
 100,000 FV
 15 N
 8 I/Y
 CPT PV 31,524.17

4) What if you want \$1,000,000 in 20 years at 12% compounded semi-annually?

$$PV = \frac{1,000,000}{(1.06)^{40}}$$

$$PV = 97,222.19$$

2nd CLR TVM
 1,000,000 FV
 20 x 2 = N OR 40 N
 12 ÷ 2 = I/Y OR 6 I/Y
 CPT PV 97,222.19

5) Problem 4 compounded quarterly?

$$PV = \frac{1,000,000}{(1.03)^{80}}$$

$$PV = 93,977.10$$

2nd CLR TVM
 1,000,000 FV
 20 x 4 = N OR 80 N
 12 ÷ 4 = I/Y OR 3 I/Y
 CPT PV 93,977.10

FORMULA $FV = PV \times (1 + i)^n$

n = number of periods

i = interest rate each time you are paid interest

$FV = 1000 (1.03)^8$

If Andrea puts \$100 in the bank today, the bank pays interest semi-annually at 8%, how much will she have in one year?

$FV = 100 \times (1.04)^2$
 $FV = 108.16$

If Dave puts \$100 in the bank toda, the bank pays interest quarterly at 12%, how much will he have in one year?

$FV = 100 \times (1.03)^4$
 $FV = 112.55$

$$FV = PV \times (1 + i)^n$$

$$FV = 100 \times (1.10)^1$$

$$FV = 110$$

How much do I need to put in the bank today to have \$110 in one year, 10% compounded annually

What if:

$$110 = PV \times (1.10)^1$$

$$\frac{110}{(1.10)^1} = \frac{PV \times (1.10)^1}{(1.10)^1}$$

$$\frac{110}{(1.10)^1} = PV$$

$$100 = PV$$

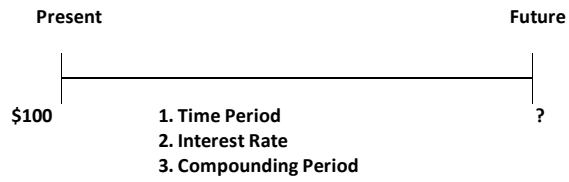
What if you want \$100 in one year, bank pays interest at 10% compounded annually?

$$\frac{100}{(1.10)^1} = \frac{PV \times (1.10)^1}{(1.10)^1}$$

$$\frac{100}{(1.10)^1} = PV$$

$$90.91 = PV$$

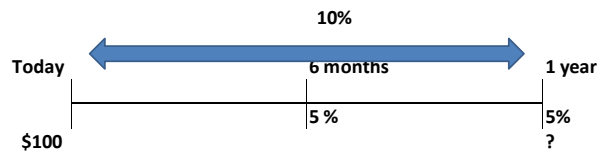
$$\frac{FV}{(1 + i)^n} = PV$$



$$100 + (100 \times 10\%) = 110 \quad \text{1 year}$$

$$110 + (110 \times 10\%) = 121 \quad \text{2 years}$$

Interest is normally stated on an annual basis.



$$100 + (100 \times 5\%) = 105$$

$$105 + (105 \times 5\%) = 110.25$$

$$\text{Periods} = 2 \text{ years} \times 4 = 8$$

$$\text{Interest} = 12 / 4 = 3\%$$

$$1000 + (1000 \times 3\%) = 1030$$

$$1030 + (1030 \times 3\%) =$$