

4.1 Investing Money

Compound Interest Formula:

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

P - principal

i - interest rate, as a decimal, found by dividing the interest rate by the compounding periods

n - number of compounding periods; found by multiplying the number of years by the compounding periods

Annual -	1
Semi - annual -	2
Quarterly -	4
Monthly -	12
Daily -	365

Let's use the compound interest formula to solve the following.

1. \$2500 is invested at 4%, compounded semi-annually, for 3 years.

$$A = P(1 + i)^n$$
$$A = 2500 \left(1 + \frac{0.04}{2}\right)^{3 \times 2}$$
$$A = \$2815.41$$

2. \$4000 invested at 6%, compounded monthly, for 2 years.

$$\$4508.64$$
$$~~4520.64~~$$

TVM Solver

N = Number of years

I% = Interest rate

PV = Present value (Principle)

PMT = Payment

FV = Future Value

P/Y = Payments per year

C/Y = Compounds per year

1. Megan invests \$1000 at 3.4%, compounded quarterly. How much money will Megan have at the end of 4 years?

N =	N=4
I% =	I%=3.4
PV =	PV=-1000
PMT =	PMT=0
FV =	▪ FV=1145.023607
P/Y =	P/Y=1
C/Y =	C/Y=4
	PMT: <input type="checkbox"/> END <input checked="" type="checkbox"/> BEGIN

2. Matt is saving for a trip to Europe. How much must he invest today to have \$8000 for the trip in 5 years time. The interest rate is 5.25% compounded semi-annually.

```

N=5
I%=5.25
▪ PV= -6173.881446
PMT=0
FV=8000
P/Y=1
C/Y=2
PMT:  END  BEGIN

```

3. Keith decides to save \$100 per month. If he earns interest at a rate of 4.2% compounded monthly how much will he have saved at the end of 3 years?

```

N=36
I%=4.2
PV=0
PMT= -100
▪ FV=3829.504816
P/Y=12
C/Y=12
PMT:  END  BEGIN

```

. Kabrea takes out a loan for \$12,000 to buy a car. She is charged interest at a rate of 5.75%, compounded monthly, for 4 years. What are Kabrea's monthly payments?

```
N=48  
I%=5.75  
PV=12000  
▪ PMT= -280.446969  
FV=0  
P/Y=12  
C/Y=12  
PMT: [END] BEGIN
```

Assignment: Handout 1-6