Lesson 3: Present Value. *How much is it worth now?*

\[ A = P(1+i)^n \quad \text{Lesson 3: Activity} \quad PV = \frac{A}{(1+i)^n} \]

**Compound Interest Assignment**

1) Calculate the final amount of $3700 after 3 years for each rate.
   a) 15% compounded semi-annually

\[ A = 3700(1.075)^6 \quad A = 5710.22 \]

b) 8% compounded quarterly

\[ A = 3700(1.02)^{12} \quad A = 4692.49 \]

c) 2.6% compounded weekly (52 weeks in a year!)

\[ A = 3700(1.0005)^{26} \quad A = 4000.08 \]

2) Calculate the present value of $2500 due in 3 years for each rate.
   a. 5% compounded monthly

\[ PV = 2500(1.004)^{-3} \quad PV = 2165.34 \]

b. 2.8% compounded annually

\[ PV = 2500(1.028)^{-3} \quad PV = 2301.23 \]

c. 2.6% compounded daily

\[ PV = 2500(1.00007)^{-1095} \quad PV = 2315.54 \]

3) Al Bino wants to invest some money, which investment is better? **Explain** how you determined your answer.

   \[ \text{Hint: Does it matter how much he invests?} \]

Investment A: 8% compounded semi-annually?

\[ A = 500(1.03)^2 = 530.45 \]

Investment B: 4.5% compounded quarterly?

\[ A = 500(1.01125)^4 = 522.18 \]
Lesson 3: Present Value. How much is it worth now?

4) Jim Nasium bought a computer and is due to pay $2734.51 in two years. His loan is charged 9% interest compounded monthly.
   a. If he pays off his loan now, how much will he need to pay?

\[
PV = \frac{2734.51}{(1.0075)^{-2.4}}
\]

\[
Pv = 2285.59
\]

\[
Savings = 2734.51 - 2285.59
\]

b. How much will he save?

5) Chester Field deposited $300 in an account that paid 12% interest compounded semi-annually. If he leaves it there for 6 years, how much will he have?

\[
A = 300(1.06)^{12}
\]

\[
A = 603.66
\]

6) Brett and Steven's grandparents gave them each $10000 to use when they go to college in 6 years. Brett invested his in a GIC that paid 2.25% compounded quarterly, while Steven invested his in a GIC that paid 1.75% compounded monthly. Who made more money? How much more?

Brett

\[
A = 10000(1.0056)^{24}
\]

\[
A = 136977.20
\]

Steven

\[
A = 10000(1.0015)^{72}
\]

\[
A = 11139.58
\]

7) Ima Nobb is getting a raise! Her pay will be increased by 2.75% each year for the next 4 years. Her current salary is $35500 per year. What will her salary be in 4 years?

\[
A = 35500(1.0275)^4
\]

\[
A = 39569.05
\]