

Unit6\_SAS4\_RoadtoaMillion [Compatibility Mode] - Word

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Hannah Oldham \*

6. Blaine wants to have \$1,000 in 10 years. The following are the choices in which he can invest:

a savings account earning 3% compounded quarterly, 741.859

a checking account earning 1% compounded monthly, or 904.97

a money market account earning 4.5% compounded semiannually.

Blaine plans on making no withdrawals or deposits for 10 years.  $\bigcirc 40.61$ 

Rewrite the formula from Question 3 for present value and allow for any compounding period (n).

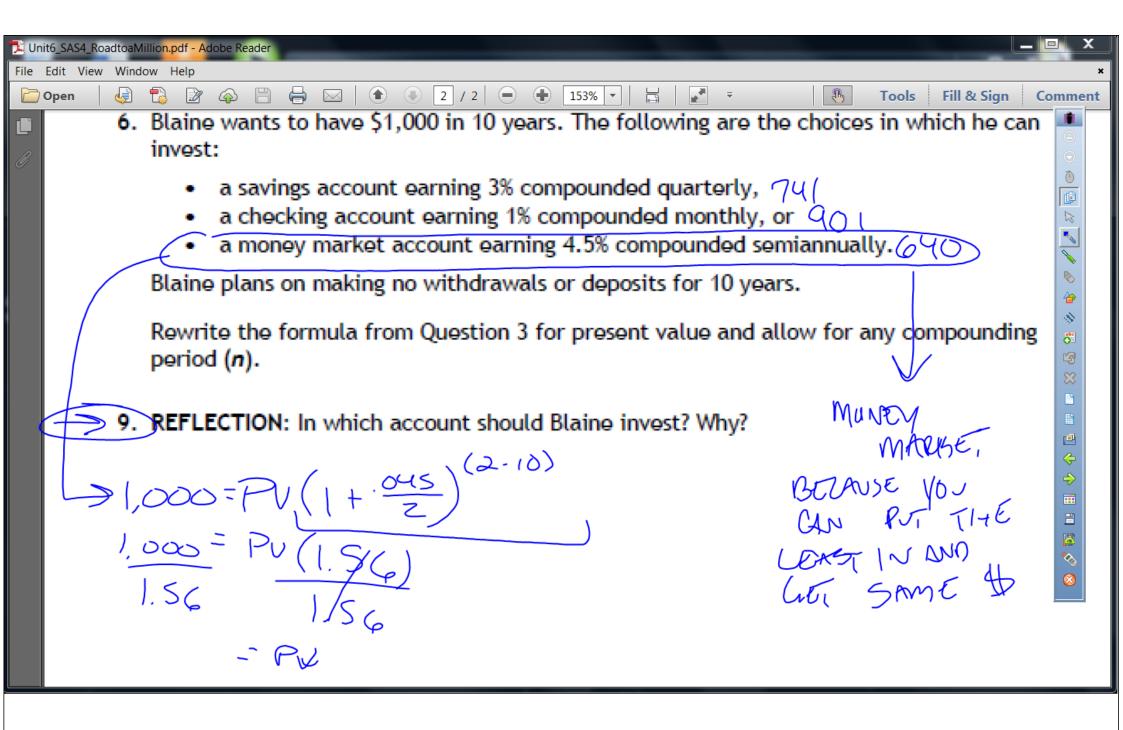
9. REFLECTION: In which account should Blaine invest? Why?

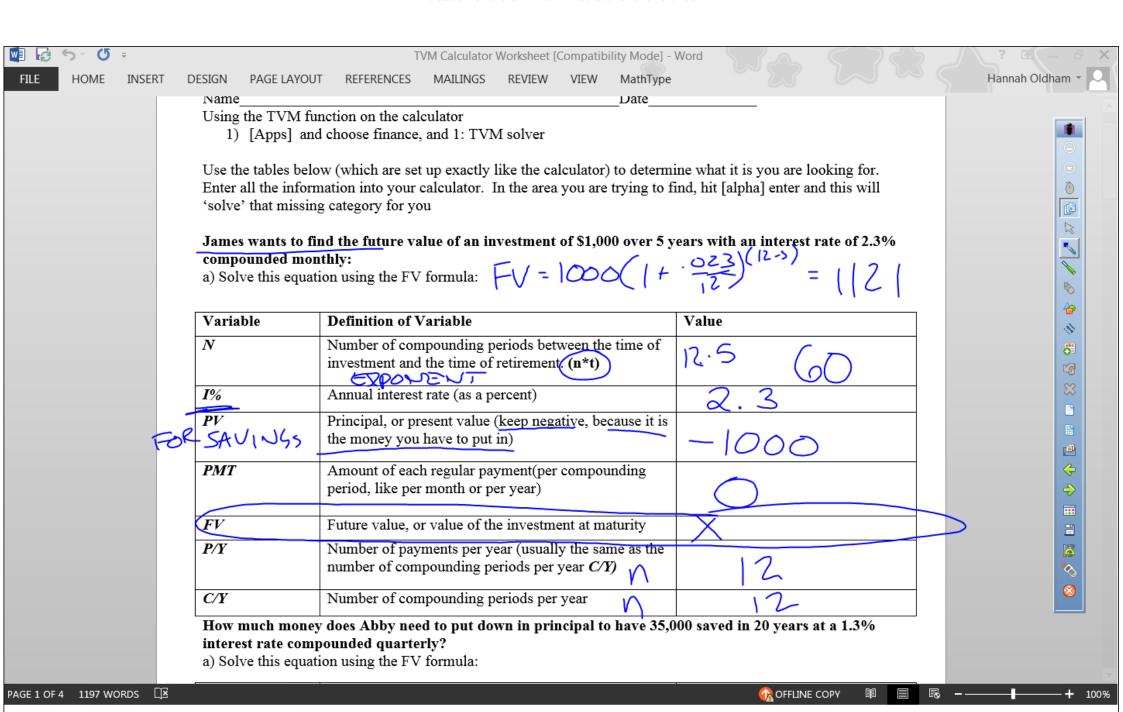
$$\frac{1,000}{1.348} = PV\left(1 + \frac{.03}{4}\right)^{(4.18)}$$

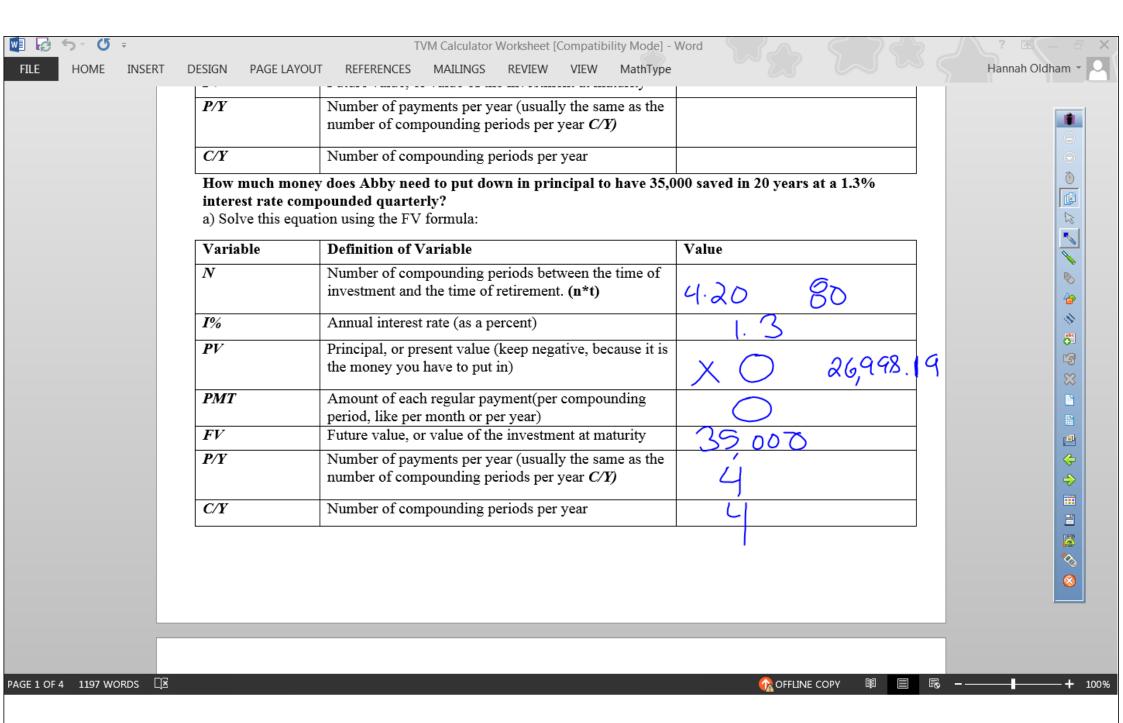
$$\frac{1,000}{1.348} = \frac{PV(1.348)}{1.348}$$

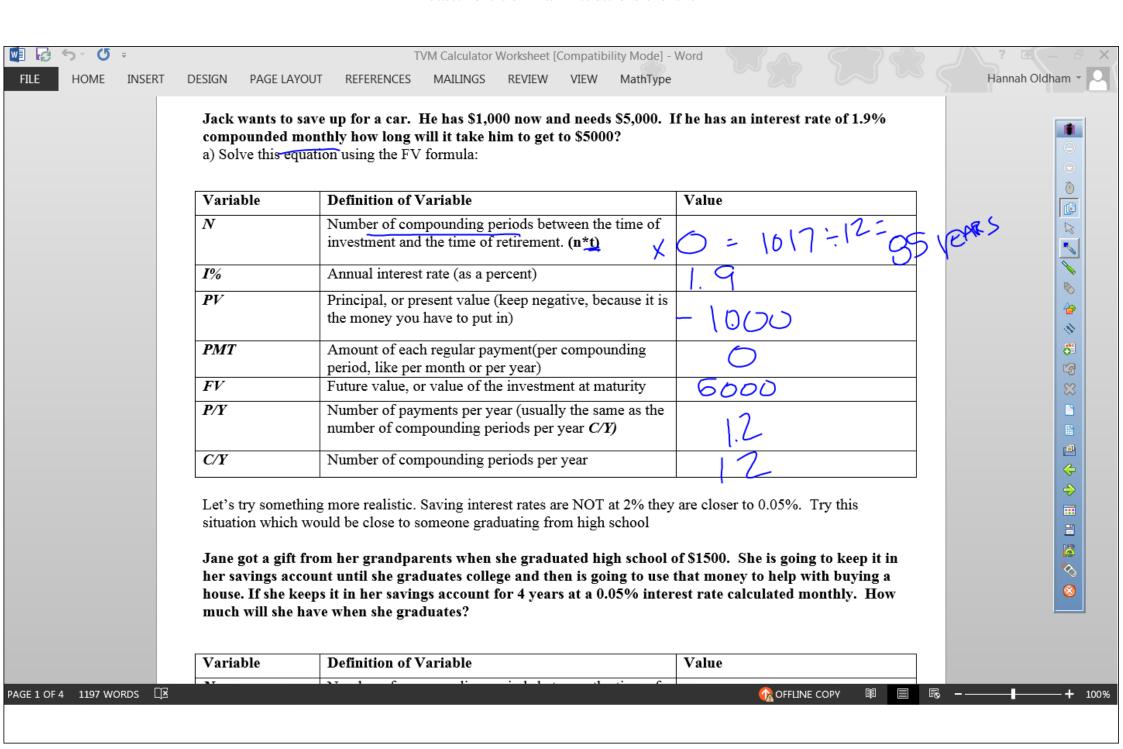
$$\frac{1.348}{1.469} = PV$$

Part 2









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Let's try something more realistic. Saving interest rates are NOT at 2% they are closer to 0.05%. Try this situation which would be close to someone graduating from high school

Jane got a gift from her grandparents when she graduated high school of \$1500. She is going to keep it in her savings account until she graduates college and then is going to use that money to help with buying a house. If she keeps it in her savings account for 4 years at a 0.05% interest rate calculated monthly. How much will she have when she graduates?

Variable	Definition of Variable	Value
N	Number of compounding periods between the time of investment and the time of retirement. (n*t)	12.4 48
<i>I%</i>	Annual interest rate (as a percent)	.05
PV	Principal, or present value (keep negative, because it is the money you have to put in)	- 1500
PMT	Amount of each regular payment (per compounding period, like per month or per year)	0
FV	Future value, or value of the investment at maturity	0X = 1503.00
P/Y	Number of payments per year (usually the same as the number of compounding periods per year C/Y)	12
C/Y	Number of compounding periods per year	17

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Ok, so what if Jane puts money into her savings account each month. We will have to use the PMT option. She will put away \$100 every month so put -100 in for PMT and recalculate how much she will have

Variable	Definition of Variable	Value
N	Number of compounding periods between the time of investment and the time of retirement. (n*t)	48
I%	Annual interest rate (as a percent)	.05
PV	Principal, or present value (keep negative, because it is the money you have to put in)	-1500
PMT	Amount of each regular payment (per compounding period, like per month or per year)	-100
FV	Future value, or value of the investment at maturity	XO 6,307,71
P/Y	Number of payments per year (usually the same as the number of compounding periods per year C/Y)	12
C/Y	Number of compounding periods per year	12

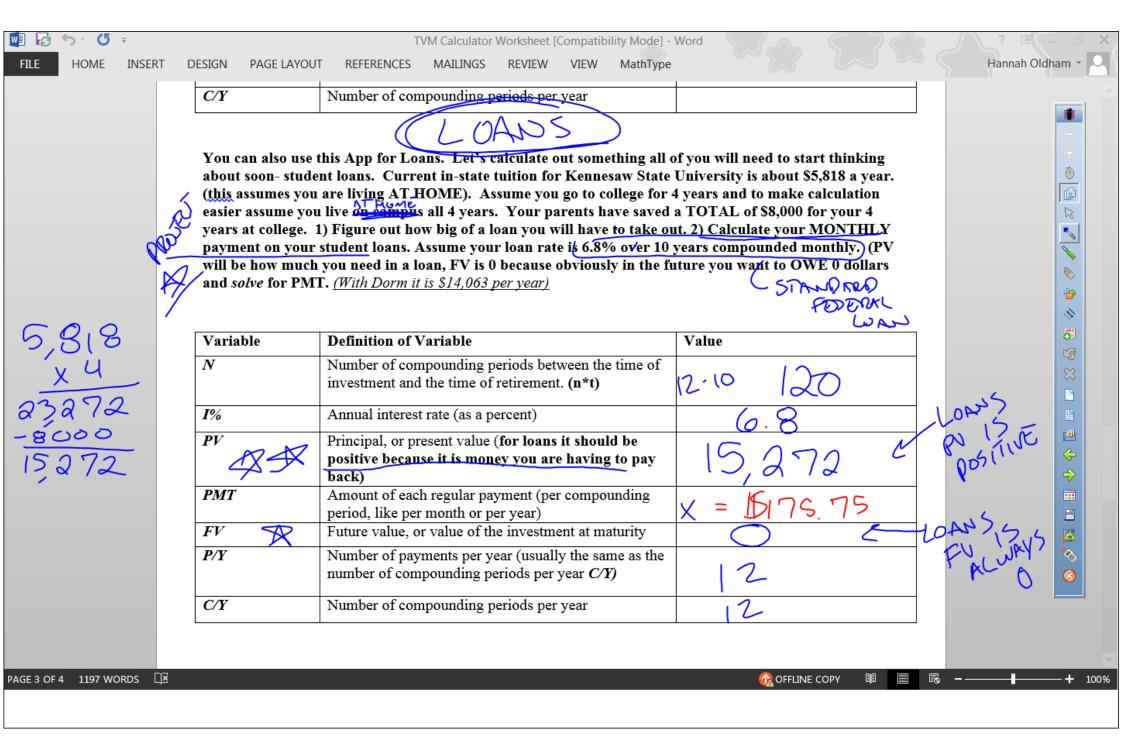
You can also use this App for Loans. Let's calculate out something all of you will need to start thinking about soon- student loans. Current in-state tuition for Kennesaw State University is about \$5,818 a year. (this assumes you are living AT HOME). Assume you go to college for 4 years and to make calculation easier assume you live on campus all 4 years. Your parents have saved a TOTAL of \$8,000 for your 4 years at college. 1) Figure out how big of a loan you will have to take out. 2) Calculate your MONTHLY payment on your student loans. Assume your loan rate is 6.8% over 10 years compounded monthly. (PV will be how much you need in a loan, FV is 0 because obviously in the future you want to OWE 0 dollars and solve for PMT. (With Dorm it is \$14,063 per year)

Variable Definition of Variable Value





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Variable	Definition of Variable	Value
N	Number of compounding periods between the time of investment and the time of retirement. (n*t)	120
<i>I%</i>	Annual interest rate (as a percent)	6.8
PV	Principal, or present value (for loans it should be positive because it is money you are having to pay back)	15,272
PMT	Amount of each regular payment (per compounding period, like per month or per year)	1 7175.75
FVLOANS	Future value, or value of the investment at maturity	
P/Y	Number of payments per year (usually the same as the number of compounding periods per year <i>C/Y</i> )	12
C/Y	Number of compounding periods per year	12

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