U7D5 Mid-Unit Review Annuities and Budgeting

Wednesday, December 27, 2017 11:41 AM

U7D5-T Review A...

U7D5 MAP4CI – Annuities and Budgeting REVIEW

Useful formulae:

$A = P(1+i)^n$ I = P r t A = P + I

$PV = A(1+i)^{-n}$ $A = R\left(\frac{(1+i)^n - 1}{i}\right)$

1) a) You have a car loan. You make payments of $270 every month for 5 years. You made a down payment of $1000 when you bought the car.
What is the total amount you paid for the car?

$270 \times 12 \times 5 + 1000$
$= \$17\,200$

b) If the cash price for the car was $14 500, how much did you paid in interest?

$17\,200 - 14500$
$= \$2700$

2) Sam wants to save $5000 for a cruise. He can invest his savings at 4.3%/a compounded monthly. How much money does he need to invest now, if he wants to go on the cruise 3 years from now?

$i = 0.043 \div 12$ $n = 3 \times 12 = 36$

← 5000 (looking for P)

$P = A(1+i)^{-n}$

$P = 5000(1 + 0.043 \div 12)^{-36}$

$P = \$4395.88$

He needs to invest $4395.88.

3) If your grandparent made a deposit of $500 the day you were born and another $500 every year on your birthday into an investment that paid 5.5% interest per year, compounded annually. Determine the value of this investment in on your 1st birthday.

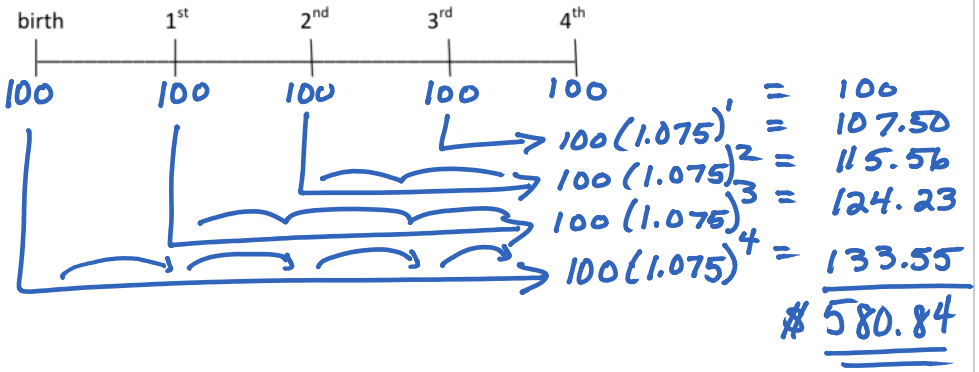
$R = \$500 \quad i = 0.055 \quad n = 2$

$A = R[(1+i)^n - 1] \div i$

$A = 500((1+0.055)^2 - 1) \div 0.055$

$A = 1027.50.$

4) If your grandparent made a deposit of $100 the day you were born and another $100 every year on your birthday into an investment that paid 7.5% interest per year, compounded annually. Determine the value of this investment in on your 4th birthday. Use a timeline to help you. Check with the appropriate annuity formula.



5) You want to save money to take a trip at the end of the year and need to put a monthly budget together to determine if you will have enough saved. Design a budget for yourself given the following information. State the size of your budget deficit or a budget surplus each month. How much will you have saved in one year?

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- annual gross income $3300, monthly deductions $800 … Net Income = 3300−800 = 2500
- rent (utilities included) of $750/month
- food - $80 weekly ×52÷12 =346.67 ≐347
- cable, internet and phone - $1440 annually ÷12 =120
- car loan - - $285/month
- clothes - $1800 annually ÷12 = 150
- car insurance - $990 every 6 months ÷6 = 165
- entertainment and sports - $200 monthly
- miscellaneous (includes gas for car) - $190 bi-weekly ×26÷12 =411.67 ≐412

Monthly Budget

Income		
	Net Income	2500
	Total Income:	2500
Expenses	**Fixed**	
	Rent	750
	Cable/Int./Phone	120
	Car Loan	285
	Car Insurance	165
	Total Fixed Expenses:	1320
	Variable	
	Food	347
	clothes	150
	Ent. and Sports	200
	misc.	412
	Total Variable Expenses:	1109
	Total Expenses:	2429
	Budget Surplus or Deficit:	71

Annual Savings / Loss= 71 ×12 = 852

At the end of 1 year $852 will be saved.