Midterm #2 Financial Functions Practice #2 Annotated Answers

REMEMBER: Ignore negatives and round ansers to the nearest dollar; will explain why in subsequent weeks.

If you understand these problems, you'll do great on the midterm.

#1 Output = FV "how much will have been saved at retirement" **NOTICE: PER year = PMT**

($316,121.08)

Inputs: n = 35 (55-20); PMT = $3,500 ("per year"); rate = 5% PV = 0 ("no savings")

#2 BOTH Output = PV "Present Value of Option One"

OPTION ONE Inputs: PMT = $45,000 ("per year"); n = 7; rate = 7% **NOTICE: PER year = PMT**

($242,518.02)

OPTION TWO Inputs: FV = $600,000 "lump sum in 10 years"; n =10; rate = 7%

($305,009.58)

OPTION TWO HAS A HIGHER PRESENT VALUE & IS THE BEST OPTION.

#3 Output = PMT "monthly payment" **REMEMBER: FOR ALL LOANS, DO MONTHLY**

($2,071.27)

Inputs: PV = $450,000 (loan amount); rate = 3.7%/12; n = 30*12

#4 Output = PMT ". . .must be saved each year . . ." **NOTICE: EACH YEAR = PMT**

($2,405.57)

Inputs: FV = $1,200,000 ("savings goal"); n = 45 (70 - 25); PV = - $50,000 ("presently have savings of");

rate = 6%. **NOTICE: "Savings" input as negative $50,000.**

#5 Output = PV "how much should an investor pay" **NOTE: INVESTMENT VALUES = PV**

($19,608.69)

Inputs: FV = $30,000 (face value); PMT = $1,000 per year; rate = 7%; n = 16 years.

#6 Output = PV "how much should an investor pay" **NOTE: INVESTMENT VALUES = PV**

($25,127.76)

Inputs: FV = $45,000 (face value); rate = 6.0%; n = 10 years

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#7　　　　　　　　Output = PV "how much can you borrow", loan amount

($482,928.88)

　　　　　　　　Inputs:　　PMT = $120,000 per year * 35% / 12;　　　　**NOTE: *35% allocates annual income to annual payment**
　　　　　　　　　　　　rate = 3.7%/12; n = 15*12　　　　　　　　　　**Dividing by 12 converts annual payment to monthly payment**

#8　　　　　　　　Output = PMT ("must be saved each year")　　　　　　**NOTICE: EACH YEAR = PMT**

($5,009.14)

　　　　　　　　Inputs:　　FV = $1,000,000 ("savings goal"); rate = 7%; n = 40 (65-25)

#9　　　　　　　　Output = FV "will have been saved at retirement"　　　**Note: Student loan is a liability, input as negative value**

($97,668.81)

　　　　　　　　Inputs:　　PMT = $4,000 ("per year"); PV = −$60,000 ("student loan"); rate = 6%; n = 55 (80 - 25)

#10　　　　　　　Output = NPV ("net present value")

$958,547.70

Input:		
Year One	$90,000	
Year Two	$97,000	
Year Three	$103,000	
Year Four	$1,009,000	**4th year income includes income from operations of $109,000**
		+ $900,000 from proceeds of selling property = $1,009,000
Rate = 9%		

#11　　　　　　　Output = IRR ("intenral rate of return")

11.9%　　　　　　　　　　　　　　　　**Note: Before the clock starts (time 0), you buy the property for $875,000.**

Input:	Year 0	-$875,000	**Input the purchase price as a negative number, $ going out .**
	Year One	$90,000	
	Year Two	$97,000	**BE SURE TO ROUND % ANSWER TO NEAREST TENTH**
	Year Three	$103,000	**NO input required for "Guess" in function box.**
	Year Four	$1,009,000	

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#12

	Year 1	Year 2	Year 3	Year 4	
Annual Gross Income	$216,000	$224,640	$233,626	$242,971	**Increase each year gross income 4% by multiplying by 1.04**
Vacancy & Collection Loss (7%)	$12,960	$13,478	$14,018	$14,578	**Multiply each year annual gross income by 6%**
Annual Effective Gross Income	$203,040	$211,162	$219,608	$228,392	**Subtract vacancy figure from annual gross income for each year**
Annual Expenses	$50,000	$53,500	$57,245	$61,252	**Increase each year expenses 7% by multiplying by 1.07**
Annual Net Income	$153,040	$157,662	$162,363	$167,140	**Subtract expenses from effective gross income for each year**

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