

Midterm #1 Financial Functions Practice Annotated Answers

- #1 Output = FV "how much will have been saved at retirement" **NOTICE: PER year = PMT**
(**\$371,428.72**)
Inputs: n = 40 (65-25); PMT = \$2,400 ("per year"); rate = 6% PV = 0 ("no savings")
- #2 BOTH Output = PV "Present Value of Option One"

OPTION ONE Inputs: PMT = \$20,000 ("per year"); n = 15; rate = 5% **NOTICE: PER year = PMT**
(**\$207,593.16**)

OPTION TWO Inputs: FV = \$450,000 "lump sum in 20 years"; n = 20; rate = 5%
(**\$169,600.27**)

OPTION TWO HAS A HIGHER PRESENT VALUE & IS THE BEST OPTION.
- #3 Output = PMT "monthly payment" **REMEMBER: FOR ALL LOANS, DO MONTHLY**
(**\$2,341.24**)
Inputs: PV = \$300,000 (loan amount); rate = 4.8%/12; n = 15*12
- #4 Output = PMT ". . . must be saved each year . . ."
(**\$9,699.58**) **NOTICE: EACH year = PMT**
Inputs: FV = \$1,100,000 ("savings goal"); n = 45 (75 - 30); PV = \$70,000 ("presently have savings of");
rate = 6%.

- #5 Output = PV "how much should an investor pay" **NOTE: INVESTMENT VALUES = PV**
 (\$21,577.37)
 Inputs: FV = \$20,000 (face value); PMT = \$1,400 per year; rate = 6%; 11 years
- #6 Output = PMT "monthly payment" **REMEMBER: FOR ALL LOANS, DO MONTHLY**
 (\$2,219.06)
 Inputs: PV = \$300,000 (loan amount); rate = 4%/12; n = 15*12
- #7 Output = PV "how much should an investor pay" **NOTE: INVESTMENT VALUES = PV**
 (\$33,645.22)
 Inputs: FV = \$50,000 (face value); rate = 4.5%; 9 years
- #8 Output = PV "how much can you borrow", loan amount
 (\$509,915.23)
 Inputs: PMT = \$105,000 per year * 32% / 12; **NOTE: *32% allocates annual income to annual payment**
 rate = 5.2%/12; n = 30*12 **Dividing by 12 converts annual to monthly payment**
- #9 Output = PMT ("must be saved each year") **NOTICE: EACH year = PMT**
 (\$4,374.46)
 Inputs: FV = \$1,250,000 ("savings goal"); rate = 7%; n = 45 (75-30)
- #10 Output = FV "will have been saved at retirement" **Note: Student loan is a liability, input as negative value**
 (\$264,115.27)
 Inputs: PMT = \$4,800 ("per year"); PV = -\$55,000 ("student loan"); rate = 6%; n = 40 (65 - 25)

**REMEMBER: Ignore negatives and round answers to the nearest dollar; will explain why in subsequent weeks.
 If you understand these problems, you'll do great on the midterm.**