

HOMEWORK:

Use the TVM Solver to answer the following questions.

1. Meghan has a \$210 000 mortgage at 7.75% amortized over 25 years. Determine her regular payment if payments are made:
 a) monthly b) ^{semi} bi-monthly twice a month c) bi-weekly every 2 weeks

N = 12 x 25
 I% = 7.75
 PV = 210 000
 • PMT = -1569.37
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

N = 24 x 25
 I% = 7.75
 PV = 210 000
 • PMT = -783.44
 FV = 0
 P/Y = 6
 C/Y = 2
 PMT: END BEGIN

N = 26 x 25
 I% = 7.75
 PV = 210 000
 • PMT = -723.09
 FV = 0
 P/Y = 26
 C/Y = 2
 PMT: END BEGIN

2. Vicki is making monthly payments of \$873.49 to pay off a \$150 000 mortgage amortized over 20 years. What annual rate of interest is she being charged?

N = 12 x 20
 • I% = 3.57
 PV = 150 000
 PMT = -873.49
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

3. Thomas is paying \$682.14 every two weeks to pay off his \$230 000 mortgage over 25 years. Determine the annual rate of interest on his mortgage.

N = 25 * 26
 • I% = 6.06
 PV = 230 000
 PMT = -682.14
 FV = 0
 P/Y = 26
 C/Y = 2
 PMT: END BEGIN

4. Carrie is paying \$1517.04 per month on her \$195 000 mortgage. If she is being charged 4.8%/a, how many years will it take her to pay off her mortgage? $n = t \cdot \# \text{ of payments}$

• N = 180
 I% = 4.8
 PV = 195 000
 PMT = -1517.04
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

$t = \frac{180}{12}$
 $t = 15 \text{ years}$

5. How many years will it take George to pay off a \$130 000 mortgage at 3.35% if he can afford a payment of \$413 every two weeks?

• N = 403
 I% = 3.35
 PV = 130 000
 PMT = -413
 FV = 0
 P/Y = 26
 C/Y = 2
 PMT: END BEGIN

$t = \frac{403}{26}$
 $t = 15.5 \text{ years}$

6. Determine the amount of a mortgage at 6.4%/a over 25 years, if the ^{semi} bi-monthly payment is \$580.

N = 25 * 24
 I% = 6.4
 • PV = 174 988.07
 PMT = -580
 FV = 0
 P/Y = 24
 C/Y = 2
 PMT: END BEGIN

7. Sarah has been making monthly mortgage payments of \$872.41 on her \$150 000 mortgage with an annual interest rate of 5%. Determine how much she will owe after 5 years by calculating the future value of the mortgage at that time.

N = 5 * 12
 I% = 5
 PV = 150 000
 PMT = -872.41
 • FV = -132 761.09
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

8. Jake and Louise want to buy a house and have determined that they can afford a monthly payment of \$945. If interest is 4.9%/a, what is the maximum amount that they should borrow, if their mortgage is amortized over:

a) 15 years?
 N = 15 * 12
 I% = 4.9
 • PV = 120 683.66
 PMT = -945
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

b) 20 years?
 N = 20 * 12
 I% = 4.9
 • PV = 144 997.17
 PMT = -945
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

c) 25 years?
 N = 25 * 12
 I% = 4.9
 • PV = 164 083.75
 PMT = -945
 FV = 0
 P/Y = 12
 C/Y = 2
 PMT: END BEGIN

SOLUTIONS:

1. a) \$1 569.37/mo, b) \$783.44/bi-mo, c) \$723.09/bi-wk 2. 3.57% 3. 6.06% 4. 15 years 5. 15 1/2 years 6. \$174 988.07
 7. \$132 761.09 8. a) \$120 683.66, b) \$144 997.17, c) \$164 083.75