Math 112 - Quiz 10

November 8, 2017

Name __key__

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (7 points) A house sells for $198,500 and a 6% down payment is made. For the remaining amount, a mortgage is secured at a fixed rate of 4.75% compounded monthly for 30 years.

    6% OF 198,500 = $11,910

    LOAN AMOUNT = $186,590

    (a) What is the monthly payment?

$$R = \frac{186590 * \left(0.0475/12 \right)}{\left(1 - \left(1 + 0.0475/12 \right)^{(-12*30)} \right)} = \boxed{\$973.^{34}}$$

    (b) When the loan is paid off in 30 years, what will be the total interest paid?

$$360 * 973.^{34} - 186590 = \boxed{\$163,812.^{40}}$$

    (c) On the back side of this sheet, construct the 1st three rows of the amortization schedule for the loan.

    SEE BACK...

2. (3 points) Carlos has been offered a loan at 9.85% compounded monthly which requires monthly payments of $324.80 for 6 years. What is the loan amount? When the loan is paid off, how much interest will Carlos have paid?

$$P = \frac{324.^{80} * \left(1 - \left(1 + 0.0985/12 \right)^{(-12*6)} \right)}{\left(0.0985/12 \right)}$$

$$= \boxed{\$17,604.^{06}}$$

$$I = 6*12*324.^{80}$$

$$- 17604.06 = \boxed{\$5781.^{54}}$$

Payment Number	Payment	Interest	Payment to Principal	Balance
1	973.34	738.59	234.75	186,355.25
2	973.34	737.66	235.68	186,119.57
3	973.34	736.72	236.62	185,882.95

#1 $I = 186590 * 0.0475 * \frac{1}{12} = 738.59$

#2 $I = 186355.25 * 0.0475 * \frac{1}{12} = 737.66$

#3 $I = 186119.57 * 0.0475 * \frac{1}{12} = 736.72$