

Math 112 - Quiz 16

November 8, 2018

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is worth 5 points. YOU MUST WORK INDIVIDUALLY.

1. (5 points) A couple looking for a home can afford to make monthly payments of \$1400. Suppose they can secure a mortgage at 4.25% compounded monthly for 30 years.

(a) How much is the biggest loan they can take?

$$P = \frac{1400 * \left(1 - \left(1 + \frac{0.0425}{12}\right)^{-12 * 30}\right)}{\left(\frac{0.0425}{12}\right)} = \$284,587.61$$

- (b) Assume they mortgage the amount you found in part (a). If they make monthly payments of \$1400 for 30 years, how much in total will they end up paying for the loan?

$$1400 \times 12 \times 30 = \$504,000.00$$

- (c) At the end of the life of the loan, how much will they have paid in interest?

$$504000 - 284587.61 = \$219,412.39$$