MTH 162
Quiz 2, Form A
Fall 2015

Show all work in a neat and organized fashion. Clearly indicate your answers.
20 points possible.

Calculator OK, but none with CAS.

1. (4 pts.) Find the annual percentage yield for an investment at 8.3% compounded monthly.

2. (4 pts.) The Millers want to save \$60,000 in 3 years for a down payment on a house. If they make quarterly deposits in an account paying 12%, compounded quarterly, what is the size of the payments that are required to meet their goal?

3. (4 pts.) Find R.

$$185{,}000 = R\left[\frac{1-(1+0.006)^{-360}}{0.006}\right]$$

4. (4 pts.) Use algebraic methods to find the limit, if it exists.

$$\lim_{x \to 5} \frac{x^2 - 25}{x^2 - 4x - 5}$$

5. (4 pts.) Determine whether the given function is continuous. If it is not, identify where it is discontinuous and which condition fails to hold.

$$g(x) = \frac{3x^2 + 2x + 2}{x + 3}$$

Formulas

Simple Interest; Arithmetic Sequences

$$I = Prt, \qquad S = P + I$$

$$a_n = a_1 + (n-1)d, \qquad s_n = \frac{n}{2}(a_1 + a_n)$$

Compound Interest; Geometric Sequences

$$n = mt, \qquad i = \frac{r}{m}, \qquad S = P(1+i)^n = P\left(1 + \frac{r}{m}\right)^{mt}, \qquad S = Pe^{rt}$$

$$\text{APY} = \left(1 + \frac{r}{m}\right)^m - 1 = (1+i)^m - 1, \qquad \text{APY} = e^r - 1$$

$$a_n = a_1 r^{n-1}, \qquad s_n = \frac{a_1(1-r^n)}{1-r}$$

Future Value of an Ordinary Annuity

$$S = R \cdot s_{\overline{n}|\,i} = R \cdot \left[\frac{(1+i)^n - 1}{i}\right]$$

Present Value of an Ordinary Annuity

$$A_n = R \cdot a_{\overline{n}|\,i} = R \cdot \left[\frac{1 - (1+i)^{-n}}{i}\right]$$

Amortization Formula

$$R = A_n \cdot \left[\frac{i}{1 - (1+i)^{-n}}\right]$$