Quiz 7

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Question 1

1 (25pts) What nominal interest rate is needed for $1200 to grow to $2000 in 8 years if the compounding is monthly? Round your answer to two decimal places AFTER you have converted the answer to a percent. Do not round anything at all before this final point.

Solution

$$A = P(1 + \frac{r}{m})^{m*n}$$

$$2000 = 1200 * (1 + \frac{r}{12})^{12*8}$$

$$(\frac{2000}{1200})^{\frac{1}{96}} = 1 + \frac{r}{12}$$

$$(\frac{2000}{1200})^{\frac{1}{96}} - 1 = \frac{r}{12}$$

$$12[(\frac{2000}{1200})^{\frac{1}{96}} - 1] = r$$

$$r = 6.042$$

Question 2

$$f(x) = e^{x^3-2x+8}$$

$$f^{'}(x) = (3x^2 - 2)e^{x^3-2x+8}$$

Question 3

$$f^{''}(x) = (3x^2 - 2)^2 e^{x^3-2x+8} + 6xe^{x^3-2x+8}$$

Question 4

$$f(x) = \log(x^2 + 17x - 5)$$

$$f^{'}(x) = \frac{2x + 17}{x^2 + 17x - 5}$$