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1. (4 points) Suppose that the number of students at the University is a growing exponential function with a doubling time of 85 years. If there are currently 24,000 students, how long will it take for there to be 30,000?

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2. (4 points) A student in a psychology course observes that students' average grades on daily quizzes vary sinusoidally with the day of the week on which the quizzes are taken. If the minimum average grade is 65% and is obtained on Friday while the maximum is 80%, obtained on Wednesday, write a formula for the average grade, A as a function of the day of the week t . (Note that in this case it is reasonable to consider a five-day week.)

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3. (2 points) Estimate $\lim_{x \rightarrow 0} \frac{\ln(x+1)}{2x}$ to within 0.01. If the limit does not exist, explain how you know.