QUIZ 8 - MATH 112

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Friday, April 1

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Compute the following integrals:

   (a) $\displaystyle \int 5x^2 \left(\frac{1}{\sqrt[3]{x^4}} - \frac{1}{\sqrt[3]{x^8}} \right) dx =$

   (b) $\displaystyle \int \frac{4x^6 - 7x^3 + 3x^2}{x^3} dx =$

2. A company installs a new computer that is expected to generate savings at the rate of $20,000e^{-0.02t}$ dollars per year, where t is the number of years that the computer has been in operation.

(a) Find a formula for the total savings $S(t)$ that the computer will generate during the first t years. (**Note**: The formula should not contain any undetermined constants.)

(b) If the computer originally cost $250,000, when will it "pay for itself"?