Remember that quizzes are based on random problems from this worksheet. Please endeavor to work through these problems before the end of each discussion.

1. Evaluate the Integral

   a) \[ \int \cos(x)(1 + \sin^2(x)) \, dx. \]

   b) \[ \int \frac{1}{1 + 2e^x - e^{-x}} \, dx. \]

   c) \[ \int_0^\pi t \cos^2 t \, dt. \]
d) \[ \int \frac{1}{1 + e^x} \, dx. \]

e) \[ \int \frac{1}{x\sqrt{4x + 1}} \, dx. \]