

**QUIZ 1 SOLUTIONS: LESSON R**  
**AUGUST 22, 2018**

Write legibly, clearly indicate the question you are answering, and put a box or circle around your final answer. If you do not clearly indicate the question numbers, I will take off points. Write as much work as you need to demonstrate to me that you understand the concepts involved. If you have any questions, raise your hand and I will come over to you.

1. [2 pts] Evaluate  $\int_0^2 e^x dx$ .

**Solution:**

$$\begin{aligned}\int_0^2 e^x dx &= e^x \Big|_0^2 \\ &= e^2 - \underbrace{e^0}_1 \\ &= \boxed{e^2 - 1}\end{aligned}$$

2. [4 pts] Evaluate  $\int_{-1}^1 \frac{3}{4}x^3 dx$ .

**Solution:**

$$\begin{aligned}\int_{-1}^1 \frac{3}{4}x^3 dx &= \frac{3}{4} \left( \frac{1}{3+1} \right) x^{3+1} \Big|_{-1}^1 \\ &= \frac{3}{4} \left( \frac{1}{4} \right) x^4 \Big|_{-1}^1 \\ &= \frac{3}{16} x^4 \Big|_{-1}^1 \\ &= \frac{3}{16} [(1)^4 - (-1)^4] \\ &= \frac{3}{16} [1 - 1] \\ &= \boxed{0}\end{aligned}$$

3. [4 pts] Evaluate  $\int \sec x(\tan x + \sec x) dx$ .

**Solution:** First, recall that

$$\int \sec x \tan x dx = \sec x + C \quad \text{and} \quad \int \sec^2 x dx = \tan x + C.$$

Second, write

$$\begin{aligned} \int \sec x(\tan x + \sec x) dx &= \int (\sec x \tan x + \sec^2 x) dx \\ &= \int \sec x \tan x dx + \int \sec^2 x dx \\ &= \boxed{\sec x + \tan x + C} \end{aligned}$$