

Quiz 3
September 16th, 2016

Name: _____, Name: _____, Name: _____ Score: ____ /20

1) Evaluate the following integral.

(5 pts)

$$\int x \arctan(x) dx$$

2) Evaluate the following limits.

(5 pts)

$$\lim_{x \rightarrow 0} \left(\cot(x) - \frac{1}{x} \right)$$

(5 pts)

$$\lim_{x \rightarrow \infty} \left(\arctan(x) - \frac{\pi}{2} \right) e^x$$

3) (5 pts) For each of the following integrals, indicate which technique (or techniques) *we have learned* that could be used to evaluate it. If it cannot be done (yet or at all), say so.

a)

$$\int x \cdot e^{x^2} dx$$

b)

$$\int x^2 \cdot e^{x^2} dx$$

c)

$$\int x^3 \cdot e^{x^2} dx$$

d)

$$\int \sin^2(x) dx$$

e)

$$\int \sin(x^2) dx$$

rules:

1. Work out the problems on separate paper, and transfer neat and clean work and solutions onto this sheet.
2. This quiz is closed-book but open-notes. Cell phones may not be out.
3. Failure of any group member to follow the rules will result in a score of zero for every group member.