

MATH 251 B47/B48/B50 Quiz #6 Winter 2005

Name: _____ I.D.#: _____

Answer all questions. Calculators are NOT allowed. 30 minutes.

1. Evaluate [20]

$$\int_0^{\pi/4} \cos(2x) dx$$

2. Evaluate [15]

$$\frac{d}{dx} \int_{1.5}^x e^{t^2+1} dt$$

3. Derive the formula for the derivative of $y = \arccos(x)$. [20]

TURN OVER FOR QUESTION 4

4. Sketch the graph of $y = f(x) = xe^{-x^2}$. [45]
- (a) Find the domain, range, asymptotes.
 - (b) Find the intervals where f is increasing or decreasing.
 - (c) Find the intervals where f is concave up or concave down.
 - (d) Find the (x, y) -coordinates of all local minima, local maxima, inflexion points, x - and y -intercepts, and indicate them on the graph.