Honors Math 182 Quiz 6 Version A

1. Find the following antiderivatives:

(i) $\int xe^{x^2} dx$

(ii) $\int xe^x dx$

(iii) $\int \frac{1}{x^2 + 4} dx$

(iv) $\int \frac{1}{x^2 - 4} dx$

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2. Make the following changes of variables:

(i) Substitute $x = \sqrt{t}$ in the integral $\displaystyle\int_1^2 \ln x \, dx$

(ii) Substitute $x = \sin\theta$ in the integral $\displaystyle\int_0^{\pi/4} \sin\theta \, d\theta$

3. Find the following integrals:

(i) $\displaystyle\int_{-1}^0 (6x^2 + 2x - 1) \, dx$

(ii) $\displaystyle\int_0^1 \arctan x \, dx$