

QUIZ 5

Compute the following:

1. (4 points) $\int x^2 \left(x^3 - \frac{1}{x^2} + \sqrt{x} \right) dx$

$$= \int x^2 (x^3 - x^{-2} + x^{1/2}) dx$$

$$= \int (x^5 - 1 + x^{5/2}) dx$$

$$= \frac{1}{6} x^6 - x + \frac{2}{7} x^{7/2} + C$$

2. (3 points) $\frac{d}{dx} \int_1^x e^{\cos(t^2)} dt$

$$= e^{\cos(x^2)}$$

3. (3 points) $\frac{d}{dx} \int_2^{x^3} \frac{1}{1+t^2} dt$

$$= \frac{1}{1+(x^3)^2} \cdot 3x^2 = \frac{3x^2}{1+x^6}$$