

Math 221 Quiz 10

Name _____ Section _____ Score ____/10

Instructions.

Please make sure to SHOW YOUR WORK, and do NOT skip steps.

1. (4 pts) $\int 1 - x^3 + \frac{1}{3x} + \frac{1}{\sqrt{x}} dx$

$$= \int 1 - x^3 + \frac{1}{3} \frac{1}{x} + x^{-\frac{1}{2}} dx$$

$$= x - \frac{x^4}{4} + \frac{1}{3} \ln|x| + \frac{x^{\frac{1}{2}}}{\frac{1}{2}} + C$$

2. (3 pts) $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx$

$$u = \sqrt{x}$$

$$du = \frac{1}{2} x^{-\frac{1}{2}} dx$$

$$du = \frac{1}{2} \frac{1}{\sqrt{x}} dx$$

$$\Rightarrow 2du = \frac{1}{\sqrt{x}} dx$$

$$? = \int \cos u \cdot 2du$$

$$= 2 \sin u + C$$

$$= 2 \sin \sqrt{x} + C$$

3. (3 pts) $\int \sin^4 x \cos x dx$

$$u = \sin x$$

$$du = \cos x dx$$

$$? = \int u^4 du$$

$$= \frac{u^5}{5} + C$$

$$= \frac{(\sin x)^5}{5} + C$$