

Quiz #6a: Sections 7.1 & 7.2

CALCULATE THE FOLLOWING INTEGRALS

Show all work to get full credit. Simplify all answers.

5 pts. 1. $\int \ln 3x \, dx$ $u = \ln 3x$ $dv = dx$
 $x \ln 3x - \int dx$ $du = \frac{3}{3x} dx$ $v = x$
 $x \ln 3x - x + C$

10 pts. 2. $\int 2x \sin 2x \, dx$ $u = 2x$ $dv = \sin 2x$ $w = 2x$
 $-x \cos 2x + \int \cos 2x \, dx$ $du = 2 \, dx$ $v = -\frac{1}{2} \cos 2x$ $dw = 2 \, dx$
 $-x \cos 2x + \frac{1}{2} \sin 2x + C$

Don't forget the back! \Rightarrow

5 pts. 3. $\int 5^t dt$

$$\frac{5^t}{\ln 5} + C$$

10 pts. 4. $\int 4z\sqrt{5+z^2} dz$

$$u = 5 + z^2$$

$$du = 2z dz$$

$$2 \int u^{1/2} du$$

$$2 \left(\frac{2}{3} u^{3/2} \right) + C$$

$$\frac{4}{3} (5+z^2)^{3/2} + C$$

Points earned: _____ out of a possible 30 points