Math 220 Section 6 Quiz 12

9 December 2015

Name: Answer key

1. $\int xe^{x^2}\,dx$ $= \frac{1}{2}\int e^u\,du = \frac{1}{2}e^u + C = \frac{1}{2}e^{x^2} + C$

$u = x^2$

$du = 2x\,dx$

2. $\int x^2 e^x\,dx$ $= x^2e^x - \int 2xe^x\,dx = x^2e^x - \left(2xe^x - \int 2e^x\,dx\right)$

$u = x^2 \longrightarrow du = 2x\,dx$ $= x^2e^x - 2xe^x + 2e^x + C$

$dv = e^x\,dx \longrightarrow v = e^x$

$r = 2x \longrightarrow dr = 2\,dx$

$ds = e^x\,dx \longrightarrow s = e^x$