13 Nov Recitation Worksheet for MA141

1. Use the u substitution to integrate the following:

   (a) $\int \frac{6x+2}{\sqrt{3x^2+2x}}\, dx$

   (b) $\int e^{\sqrt{x}} \cdot \frac{1}{2\sqrt{x}}\, dx$

   (c) $\int \cos(5x - 4)\, dx$

   (d) $\int 3x^3 (x^4 - 7)^5\, dx$

2. Recall

$$\int u\, dv = uv - \int v\, du$$

   Rewrite and solve the following integrals given u and dv:

   (a) $\int x \sin x\, dx$, $u = x$, $dv = \sin x\, dx$

   (b) $\int \ln x\, dx$, $u = \ln x$, $dv = 1\, dx$

   (c) $\int x e^{2x}\, dx$, $u = x$, $dv = e^{2x}\, dx$

3. Use repeated integration by parts to integrate the following:

   (a) $\int x^2 e^x\, dx$

   (b) $\int e^x \cos x\, dx$

   (c) $\int x^2 \sin x\, dx$

4. Integrate the following using any applicable method:

   (a) $\int 2x \sin x^2\, dx$

   (b) $\int \sin x e^x\, dx$

   (c) $\int x \ln x\, dx$

   (d) $\int 3x e^{x^2}\, dx$