

MATH 141, FALL 2011

Some integrals to start with (use appropriate substitutions):

$$\int x^2 \sqrt[3]{1-x} dx = -\frac{3}{140}(9 + 12x + 14x^2)(1-x)^{4/3} + C$$

$$\int x^3(1-5x^2)^{10} dx = -\frac{1+55x^2}{6600}(1-5x^2)^{11} + C$$

$$\int \frac{x^2}{\sqrt{2-x}} dx = -\frac{2}{15}(32 + 8x + 3x^2)\sqrt{2-x} + C$$

$$\int \frac{x^5}{\sqrt{1-x^2}} dx = -\frac{1}{15}(8 + 4x^2 + 3x^4)\sqrt{1-x^2} + C$$

$$\int x^5(2-5x^3)^{2/3} dx = -\frac{6+25x^3}{1000}(2-5x^3)^{5/3} + C$$

$$\int \cos^5(x)\sqrt{\sin(x)} dx = \left(\frac{2}{3} - \frac{4}{7}\sin^2(x) + \frac{2}{11}\sin^4(x)\right)\sqrt{\sin^3(x)} + C$$

$$\int \frac{\sin(x)\cos^3(x)}{1+\cos^2(x)} dx = -\frac{1}{2}\cos^2(x) + \frac{1}{2}\ln(1+\cos^2(x)) + C$$

$$\int \frac{\sin^2(x)}{\cos^6(x)} dx = \frac{1}{3}\tan^3(x) + \frac{1}{5}\tan^5(x) + C$$

$$\int \frac{\ln(x)}{x\sqrt{1+\ln(x)}} dx = \frac{1}{2}(-2 + \ln(x))\sqrt{1+\ln(x)} + C$$

$$\int \frac{1}{e^x + e^{x/2}} dx = -x - 2e^{-x/2} + 2\ln(1 + e^{x/2}) + C$$

$$\int \frac{1}{\sqrt{e^x + 1}} dx = x - 2\ln(1 + \sqrt{1 + e^x}) + C$$

$$\int \frac{\arctan(\sqrt{x})}{(1+x)\sqrt{x}} dx = \arctan^2(\sqrt{x}) + C$$