

## Math 21B - Homework Set 8

**Section 8.4:** Evaluate the following integrals.

1.  $\int \frac{x+4}{x^2+5x-6} dx$

2.  $\int \frac{x+3}{2x^3-8x} dx$

3.  $\int_0^1 \frac{x^3}{x^2+2x+1} dx$

4.  $\int_0^1 \frac{dx}{(x+1)(x^2+1)}$

5.  $\int_1^{\sqrt{3}} \frac{3t^2+t+4}{t^3+t} dt$

6.  $\int \frac{x^4}{x^2-1} dx$

**Section 8.7:** Evaluate the following integrals.

1.  $\int_0^1 \frac{1}{\sqrt{x}} dx$

2.  $\int_0^1 \frac{1}{\sqrt{1-x^2}} dx$

3.  $\int_1^\infty \frac{1}{x\sqrt{x^2-1}} dx$

4.  $\int_0^\infty 2e^{-\theta} \sin \theta d\theta$

5.  $\int_{-\infty}^\infty 2xe^{-x^2} dx$

6.  $\int_0^1 x \ln x dx$

7.  $\int_{-1}^4 \frac{1}{\sqrt{|x|}} dx$

**Section 11.2:**

1. Find the surface area when the curve

$$\begin{aligned}x &= \cos t, \\y &= 2 + \sin t, \quad 0 \leq t \leq 2\pi\end{aligned}$$

is revolved about the  $x$ -axis.

2. Find the surface area when the curve

$$\begin{aligned}x &= \ln(\sec t + \tan t) - \sin t, \\y &= \cos t, \quad 0 \leq t \leq \frac{\pi}{3}\end{aligned}$$

is revolved about the  $x$ -axis.