

**MATE 3032 assignment 5: sections 7.3, 7.5, 7.8**

31-32. Choose two of exercise 4–22 p.491, involving two different types of substitution. Solve each following exactly the steps shown in CC10. Do not substitute your own style.

33. Evaluate:

(a)  $\int_{-1}^2 \frac{e^{3x}}{1+e^x} dx$

(b)  $\int_{\pi/4}^{\pi/2} \frac{\cos\theta \tan\theta}{\csc\theta} d\theta$

(c)  $\int_{-\pi/2}^{\pi/2} \theta \sin^2\theta \cos\theta d\theta.$

34. Exercise 84 p.508.

35-36 Determine whether the integral converges or diverges. You are not required to evaluate the integral; use the comparison principle where appropriate.

35.

(a)  $\int_1^{\infty} \frac{1}{\sqrt{x+x}} dx$

(b)  $\int_1^{\infty} \frac{2x+1}{\sqrt{x^4+x}} dx$

(c)  $\int_{-\infty}^0 \frac{1}{4x-3} dx$

36.

(a)  $\int_0^{\infty} \cos^2 x dx$

(b)  $\int_0^{\infty} \frac{\arctan x}{1+x} dx$

37-39. Exercises 61, 71, 78 pp.535-536.