

The First Exam will cover the following sections of the text: 7.2, 7.4, 7.6, 8.1, 8.2
Find the following :

1. $\int \sin^2 x \cos^5 x \, dx$

2. $\int \sec x \, dx$

3. $\int \sec^3 x \, dx$

4. $\int \sin^2 x \, dx$

5. $\int \cos^2 x \, dx$

6. $\int \sin^3 x \, dx$

7. $\int \cos^3 x \, dx$

8. $\int \frac{e^{\arctan x}}{1+x^2} \, dx$

9. $\int \frac{x^2}{(4-x^2)^{3/2}} \, dx$

10. $\int \frac{x+1}{x^2+6x+10} \, dx$

11. $\int \sqrt{x} e^{\sqrt{x}} \, dx$

12. $\int \ln x \, dx$

13. $\int \frac{1}{\sqrt{9-x^2}} \, dx$

14. $\int \frac{x \, dx}{(x^2+9)}$

15. $\int \frac{dx}{(x^2+9)}$

16. $\int \frac{1}{\sqrt{9-x^2}} \, dx$

17. $\int \frac{x}{\sqrt{9-x^2}} \, dx$

18. $\int \frac{\ln(x)}{x} \, dx$

19. $\int \ln x \, dx$

20. $\int x e^x dx$

21. $\int x \sin(x) dx$

II. Differentiate each of the following:

1. $\ln(\sin(x))$

2. $\tan^{-1}(1 + x^2)$

3. $\sin^{-1}(1 + x^2)$

4. e^{x^3+x}

5. x^{e^x}

III. Discuss the graphs of the following as to where the function is inc/decr and con up/down find zero and asymptotes.

1. $f(x) = x e^x$

2. $f(x) = e^{\frac{-1}{x+1}}$

IV. Do the following:

1. Evaluate $\sin \left[\arctan (1) \right]$

2. Evaluate $\tan \left[\arcsin (1/2) \right]$