

USE EXTRA PAPER AND SHOW ALL STEPS VERY CLEARLY. DO NOT CROWD THE WORK! To receive full credit, identify the method being used (integration by parts, trig integration, or trig substitution) and show the full process. BOX your final answer and then leave about an inch of space BELOW the end of one problem and before the beginning of the next. DO NOT place two problems side by side on a sheet of paper. Each problem is worth 3 points.

1.  $\int \frac{\sin^2 x}{\cos x} dx$

2.  $\int_0^{\pi/3} \tan^5 x \sec x dx$  (exact answer)

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

4.  $\int \frac{x}{(x^2-9)^{5/2}} dx$

5.  $\int x^3 e^{2x} dx$

6.  $\int \frac{1}{x^2 \sqrt{x^2+16}} dx$

7.  $\int \sin 8x \sin 3x dx$

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

9.  $\int x^3 e^{x^2} dx$

10.  $\int \frac{\sin x}{\cos^2 x - 1} dx$

11.  $\int x 3^x dx$

12.  $\int \frac{x^3}{\sqrt{25-x^2}} dx$

13.  $\int x^4 \cdot \cos 2x dx$

14.  $\int e^x \sqrt{9-e^{2x}} dx$

15.  $\int (3x+4)^5 (5x+1)^2 dx$