

USE AN EXTRA SHEET OF PAPER AND SHOW ALL STEPS VERY CLEARLY. To receive full credit, tell what expression represents u and dv and what the du and v are that go with them. Box your final answer.

$$\int \sin x \ln(\cos x) dx$$

$$\int \arctan x dx$$

$$\int x^2 2^{2x} dx$$

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

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

CHALLENGE

$$\int x^5 \sin(x^3) dx$$

USE AN EXTRA SHEET OF PAPER AND SHOW ALL STEPS VERY CLEARLY. To receive full credit, all work must be written out. Box your final answer.

$$\int \sin 7x \sin 5x dx$$

$$\int \frac{\sin^4 x}{\cos x} dx$$

$$\int \cos^4 3x dx$$

$$\int \tan^5 x \csc^2 x dx$$

$$\int_0^{\frac{\pi}{3}} \tan^3 x \sec^3 x dx$$

CHALLENGE

$$\int \sin x \sin 3x \sin 5x dx$$

To receive full credit, you must show all appropriate work and steps. USE AN EXTRA SHEET OF PAPER and box your answers.

$$\int \frac{\sqrt{4x^2 - 9}}{x} dx$$

$$\int \frac{x^3}{\sqrt{49 - x^2}} dx$$

$$\int \frac{4x}{(9x^2 - 16)^{\frac{3}{2}}} dx$$

$$\int \frac{1}{x^2 \sqrt{25x^2 + 1}} dx$$

CHALLENGE

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

USE AN EXTRA SHEET OF PAPER FOR YOUR SOLUTIONS. To receive full credit, you must show all the work that is involved even in preparing these problems for solution. Box your answers.

$$\int \frac{3x^2 - 2x + 5}{x^3 - 4x} dx$$

$$\int \frac{x^4 - 2x^2 - 3x + 6}{x^3 - x^2 + x - 1} dx$$

CHALLENGE

$$\int \frac{1 - 3x + 2x^2 - x^3}{x^5 + 2x^3 + x} dx$$

USE AN EXTRA SHEET OF PAPER. Some of these are rather tedious. To receive full credit, all steps must be shown.

$$\int \frac{7}{x^2 - 6x + 25} dx$$

$$\int \frac{1}{x(\sqrt[3]{x} - \sqrt[5]{x})} dx$$

$$\int \frac{x}{\sqrt[3]{x} - 1} dx$$

$$\int \frac{e^{2x}}{e^x + 4} dx$$

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