Renert School: Integration Bee 2026–2027

Problem 1.

$$\int_1^{mower} \frac{1}{u}\,du$$

Problems 2-17 are great review.

Problem 2.

$$\int_{-8}^{-1} \left(\frac{2}{x^{1/3}} + 4x\right)\,dx$$

Problem 3.

$$\int \frac{\sqrt{r} - 5}{\sqrt{r}}\,dr$$

Problem 4.

$$\int s(\sqrt{s} + 1)\,ds$$

Problem 5.

$$\int_{\pi/6}^{\pi/3} \sin(2x)\,dx$$

Problem 6.

$$\int x^3 e^{x^4}\,dx$$

Problem 7.

$$\int (2x - 1)\sin(4x)\,dx$$

Problem 8.

$$\int \frac{\sec\theta\tan\theta}{\sqrt{\sec\theta + 1}}\,d\theta$$

Problem 9.

$$\int \ln x^3\,dx$$

Problem 10.

$$\int \frac{1}{t^2 - 6t + 10}\,dt$$

Problem 11.

$$\int_{-1}^{1} \frac{1}{x^3}\,dx$$

Problem 12.

$$\int \frac{8x^2 - 2x + 3}{2x - 1}\,dx$$

Problem 13.

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

Problem 14.

$$\int_e^{e^2} \frac{1}{x \ln x}\, dx$$

Problem 15.

$$\int_0^4 \sqrt{3x+4}\, dx$$

Problem 16.

$$\int \frac{x+1}{x(2x+1)}\, dx$$

Problem 17.

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