

Midterm #2

Please print your name:

No notes, graphing calculators or other tools are permitted. There are 30 points in total. You need to show work to receive full credit.

Good luck!

Problem 1. (6 points) Evaluate the following indefinite integral: $\int \cos^6(2x)\sin^3(2x) dx$

Problem 2. (4 points) Determine the shape (but not the exact numbers involved) of the partial fraction decompositions of:

(a) $\frac{2x - 6}{x(x + 1)(x + 2)} =$

(b) $\frac{x^6}{(x + 2)^2(x^2 + 1)} =$

Problem 3. (6 points) Evaluate the integral $\int_1^2 x \ln(x) dx$.

Problem 4. (4 points) Evaluate the following indefinite integral: $\int \frac{1}{\sqrt{9-x^2}} dx$.

Problem 5. (7 points) Evaluate the following indefinite integral: $\int \frac{2x-3}{x^2+3x} dx$

Problem 6. (3 points) Evaluate the following integral or show that it diverges: $\int_{-1}^1 \frac{1}{2x+1} dx$

(extra scratch paper)