

MAT123 - Homework 2
Due February 1

Write answers on your own paper. Show your work, staple, and be neat. Sloppy work will not be graded. I recommend that you work answers on scrap paper before transcribing to the final copy.

Use substitution to simplify

1. $\int_1^2 \frac{1}{2-3x} dx$

2. $\int \cos(x) \sin(\sin(x)) dx$

Use integration by parts to simplify

3. $\int t^{3/2} \ln(t) dt$

4. $\int_0^5 ze^{-0.6z} dz$

Use the table of integrals to simplify

5. $\int (x-2)^5 \sin(2x) dx$

6. $\int \frac{1}{\sqrt{4x^2+9}} dx$ (It will help to begin with a substitution.)

Use partial fractions to simplify:

7. $\int \frac{1}{x^2-5x+6} dx$

Use long division to simplify:

8. $\int \frac{x^4+4}{x^2+4} dx$ (The substitution $u = x/2$ will help to anti-differentiate the remainder.)

Use trig substitution to simplify

9. $\int \frac{1}{4x^2+9} dx$

10. Find the area of the ellipse given by $x^2 + 16y^2 = 25$.