

MAT 132

Practice Midterm I. February 21, 2018

This is a closed notes/ closed book/ electronics off exam.

Please write legibly and show your work.

Each problem is worth 25 points.

Full Name:					
Problem	1	2	3	4	Total
Grade					

Problem 1. Perform the following indefinite integrals.

a.

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

b.

$$\int x^2 \cos x dx$$

c.

$$\int \frac{dx}{x^2 + 5x + 6}$$

d.

$$\int \tan x dx$$

Problem 2. Perform the following definite integrals.

a.

$$\int_0^2 \sqrt{4-x^2} dx.$$

b.

$$\int_0^1 \log x dx$$

c.

$$\int_0^{2\pi} (\sin x)^3 dx$$

d.

$$\int_{-\infty}^{\infty} x e^{-x^2} dx$$

Problem 3.

- a. Write down the Riemann sum for the integral

$$\int_1^2 \frac{dx}{1+x^2}$$

using left end points.

- b. Let $F(x) = \int_{e^x}^{e^{2x}} \frac{dt}{t^2}$. Find $F'(x)$.

Problem 4. At time t the velocity of a particle moving along a line is given by $v(t) = t^3 - t^2 + t - 1$. Find the displacement and distance traveled by the particle between times $t = 0$ and $t = 4$.