Quiz #3

Questions 1-4 are all long-response questions. In each case, be careful to indicate your final answer **and show how you obtained it**. Answers with no supporting work will get no credit.

You may assume the following integral formula on this quiz.

$$\int \frac{1}{1+x^2}\,dx = \arctan(x) + C$$

You should not use your calculator for any of the problems on this quiz.

1. **(2 points)** Evaluate the following indefinite integral to find the most general antiderivative.

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

2. **(3 points)** Evaluate the following indefinite integral to find the most general antiderivative.

$$\int \frac{1}{x^3 + 4x^2 + 4x}\, dx.$$

3. **(3 points)** Evaluate the following indefinite integral to find the most general antiderivative.

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

4. **(2 points)** Evaluate the following indefinite integral to find the most general antiderivative.

$$\int \frac{1}{x^2 - 8x + 17}\, dx\,.$$