HW 12: Section 6.1

Due: Monday, October 21st in SQRC by 9pm

Learning Goals:

- Practice compute integrals using a variety of techniques.

Questions:

Solve the integrals:

1. Problem 6.1.2
$$\int \cos(ax)\, dx$$

2. Problem 6.1.4
$$\int \frac{1}{|x|\sqrt{x^2 - a^2}}\, dx$$

3. Problem 6.1.10
$$\int \frac{2}{4 + 4x^2}\, dx$$

4. Problem 6.1.14
$$\int \frac{4x + 4}{5 + 2x + x^2}\, dx$$

5. Problem 6.1.26
$$\int_{\pi/4}^{\pi/2} \frac{1}{\sin^2(t)}\, dt$$

6. Problem 6.1.30
$$\int \frac{e^x}{\sqrt{1 - e^{2x}}}\, dx$$

7. Problem 6.1.34
$$\int \frac{1}{\sqrt{x} + x}\, dx$$

8. Problem 6.1.44 In this problem, you can only solve one of the given integrals. Figure out which one you can solve and solve it.
$$\int \frac{x^3}{1 + x^8}\, dx$$

$$\int \frac{x^4}{1 + x^8}\, dx$$