HW 15: Section 6.4

Due: Thursday, October 31st in SQRC by 9pm

Learning Goals:

- Compute integrals using the method of partial fractions.
- Combine all our current integration techniques when solving integrals.

Questions:

Solve the integrals:

1. Problem 6.4.2
$$\int \frac{5x-2}{x^2-4}\,dx$$
2. Problem 6.4.6
$$\int \frac{3x+8}{x^3+5x^2+6x}\,dx$$
3. Problem 6.4.10
$$\int \frac{4x-5}{x^3-3x^2}\,dx$$
4. Problem 6.4.12
$$\int \frac{1}{x^3+4x}\,dx$$
5. Problem 6.4.16
$$\int \frac{2x}{x^2-6x+9}\,dx$$
6. The population of Deer on Lewis & Clark campus follows the logistic growth model
$$\frac{dP}{dt} = 0.2P(100-P)$$
with initial condition $P(0) = 10$. Solve this differential equation to find a formula for $P(t)$.