

## MATH 122 - Algebraic Simplification and Integration

Say what method you would use and why it would work, then try to solve the resulting integral.

1. What method and why:

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

2. What method and why:

$$\int \frac{1}{2x^2 + 10x + 3} dx$$

3. What method and why:

$$\int \frac{x^4 + 4x^2 + 5}{x^2 + 1} dx$$

4. What method and why:

$$\int \frac{8x^3 + 2x + 1}{2x + 1} dx$$

5. What method and why:

$$\int \frac{1}{x^2 - 7x + 10} dx$$

6. What method and why:

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

7. What method and why:

$$\int \frac{1}{x^3 + x} dx$$