

Final Exam Practice 2 (due April 17)

1. Use a partial fraction decomposition of the form $\frac{A}{x-2} + \frac{B}{x+4}$ to show that

$$\int \frac{1}{x^2 + 2x - 8} dx = \frac{1}{6} \ln(|x - 2|) - \frac{1}{6} \ln(|x + 4|) + C$$

2. Let A be a non-zero constant. Compute

$$\int_1^2 \left(\frac{1}{W^3} + AW \right)^2 dW.$$

3. Use the method of long division to show

$$\int \frac{t-1}{t+1} dt = t - 2 \ln(|t+1|) + C$$

Reminder: Long division can be used if the degree of the numerator is larger than or equal to the degree of the denominator.