

8. [12 points]

a. [6 points] Split the function

$$f(x) = \frac{x + 2}{(x - 2)^2(x - 1)}$$

into partial fractions. Do not integrate your result. Please show all of your work.

8. (continued)

b. [6 points] Given the partial fraction decomposition

$$\frac{-3x}{(x+1)(x^2+1)} = \frac{3}{2(x+1)} - \frac{3(x+1)}{2(x^2+1)},$$

evaluate the following indefinite integral, showing all of your work:

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