

3. [12 points]

- a. [6 points] Split the following function into partial fractions. Do not integrate the result. Be sure to show all your work.

$$\frac{10x + 2}{(x - 1)^2(x + 2)}$$

b. [6 points] Given the partial fraction decomposition

$$\frac{-x - 10}{(x - 3)(x^2 + 4)} = \frac{-1}{x - 3} + \frac{x + 2}{x^2 + 4},$$

evaluate the following indefinite integral, show all your steps:

$$\int \frac{-x - 10}{(x - 3)(x^2 + 4)} dx$$