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:

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