

QUIZ 8

1. Rewrite the following rational functions in terms of their partial fractions. Note: you do not need to solve for the unknowns A, B, C, etc. Namely, just write the format of the partial fractions.

a. $\frac{4x}{(x+1)(x+2)}$

b. $\frac{7x-1}{(x+1)(x^2+1)}$

c. $\frac{x^2+4}{x^4(x-1)}$

2. Determine what is wrong with the work below:

a. $\int \frac{x^2+2x+6}{(x+1)(x^2+1)} dx = \int \frac{1}{x+1} + \frac{2x}{x^2+1} dx = \ln(x+1) + \ln(x^2+1) + C$

b. $\int \frac{1}{x^2+2x+10} dx = \int \frac{1}{(x+1)^2+9} dx = \frac{1}{3} \arctan\left(\frac{x+1}{3}\right) + C$