Lets do partial fraction decomposition:

$\frac{x^2+x-16}{(x+1)(x+3)^2} = \frac{a}{x+1} + \frac{b}{x-3} + \frac{c}{(x-3)^2}$

lets find the coefficients

$\frac{a(x-3)^2+b(x+1)(x-3)+c(x+1)}{(x+1)(x+3)^2} = \frac{x^2+x-16}{(x+1)(x+3)^2} \Rightarrow$

$(a+b)x^2 = x^2$
$x = -6a - 2b + c$
$-16 = 9a + c - 3b$

just do the math yourself and you will get:

$a = -1; b = 2; c = -1$

and now the following expression is something that you can solve very easily:

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