

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\frac{x+3}{x+1} = 1 + \frac{2}{x+1}$

2.2

- $\frac{1}{4} \arctan \frac{x}{4} + C$

2.3

- $(x+3)^2 + 4$

3.1 B

- with $a = 5$, $\int \frac{dx}{x^2+25} = \frac{1}{5} \arctan \frac{x}{5} + C$

3.2

- $\frac{x+2}{x+1} = 1 + \frac{1}{x+1}$; $\int \left(1 + \frac{1}{x+1}\right) dx = x + \ln|x+1| + C$

3.3

- $x^2 + 2x + 10 = (x+1)^2 + 9$; with $u = x+1$, $\int \frac{du}{u^2+9} = \frac{1}{3} \arctan \frac{u}{3} = \frac{1}{3} \arctan \frac{x+1}{3} + C$