

Solutions

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

2.1

- $\frac{A}{x-3} + \frac{B}{x+1}$

2.2

- $5 = A(x+3) + B(x-2); x=2: 5 = 5A \Rightarrow A=1; x=-3: 5 = -5B \Rightarrow B=-1$

2.3

- $2\ln|x-1| + 3\ln|x+4| + C$

3.1 A

- $\int \frac{A}{x-a} dx = A \ln|x-a| + C$

3.2

(a)

- $1 = A(x+1) + B(x-1); x=1: A = \frac{1}{2}; x=-1: B = -\frac{1}{2}$

(b)

- $\frac{1}{2} \ln|x-1| - \frac{1}{2} \ln|x+1| + C$

3.3

- $x+7 = A(x+3) + B(x-1); x=1: 8 = 4A \Rightarrow A=2; x=-3: 4 = -4B \Rightarrow B=-1;$
 $\int \left(\frac{2}{x-1} - \frac{1}{x+3} \right) dx = 2\ln|x-1| - \ln|x+3| + C$