9. $\int \frac{x-5}{(x+2)^2+3}\,dx$

$u = (x+2)^2+3$

$du = 2(x+2)^1\,dx$

$du = (2x+4)\,dx$

$= \frac{1}{2}\int \frac{2(x-5)}{(x+2)^2+3}\,dx$

$= \frac{1}{2}\int \frac{2x-10}{(x+2)^2+3}\,dx$

$= \frac{1}{2}\int \frac{2x+4-14}{(x+2)^2+3}\,dx$

$= \frac{1}{2}\int \frac{2x+4}{(x+2)^2+3}\,dx - \frac{1}{2}\int \frac{14}{(x+2)^2+3}\,dx$

$u = (x+2)^2+3$

$du = (2x+4)\,dx$

$= \frac{1}{2}\int \frac{1}{u}\,du - \frac{1}{2}\cdot 14 \int \frac{1}{(\sqrt{3})^2+(x+2)^2}\,dx$

$a = \sqrt{3} \quad w = x+2 \quad dw = dx$

$= \frac{1}{2}\ln|u| - 7\int \frac{1}{a^2+w^2}\,dw$

$= \frac{1}{2}\ln\left|(x+2)^2+3\right| - 7\cdot\frac{1}{a}\arctan\frac{w}{a} + C$

$= \frac{1}{2}\ln\left((x+2)^2+3\right) - 7\cdot\frac{1}{\sqrt{3}}\arctan\frac{x+2}{\sqrt{3}} + C$