

$$114. \int_c^x f(t) dt = x^2 + x - 2$$

Let $f(t) = 2t + 1$. Then

$$\int_c^x f(t) dt = \int_c^x (2t + 1) dt = \left[t^2 + t \right]_c^x =$$

$$x^2 + x - c^2 - c = x^2 + x - 2$$

$$-c^2 - c = -2$$

$$c^2 + c - 2 = 0$$

$$(c + 2)(c - 1) = 0 \Rightarrow c = 1, -2.$$

So, $f(x) = 2x + 1$, and $c = 1$ or $c = -2$.