

Solution (#1612) (i) Set $z = x + y - 4$. The solution is

$$y = 4 - x + \tan(x + c)$$

where c is a constant.

(ii) Set $z^2 = 2x + 3y - 2$. The general solution is

$$\frac{2}{3}\sqrt{2x + 3y - 2} - \frac{4}{3}\ln\left(2 + 3\sqrt{2x + 3y - 2}\right) = x + \text{const.}$$