

Rewrite $f(x)=x^2-3x$ by completing the square.

1) First find half of -3 . This is $\frac{-3}{2}$. Then write

$$f(x)=\left(x - \frac{3}{2}\right)^2 - \left(\frac{-3}{2}\right)^2 \quad \text{Note: } \left(\frac{-3}{2}\right)^2 = \frac{-3}{2} \times \frac{-3}{2} = \frac{9}{4}$$

2) Now simplify by writing

$$f(x)=\left(x - \frac{3}{2}\right)^2 - \frac{9}{4}$$