[10.6] Given $f(x,y) = x^3 - y^3$ and $\begin{cases} X = x - y \\ Y = xy \end{cases}$

So $\begin{cases} X^2 = x^2 - 2xy + y^2 \\ 2Y = \quad 2xy \end{cases}$

$X^2 + 2Y = x^2 + y^2$

Also $(x^3 - y^3) = (x - y)(x^2 + xy + y^2)$

$= X(x^2 + y^2 + Y)$

$= X(x^2 + 2Y + Y)$

$= \boxed{X(x^2 + 3Y) = F(X,Y)}$