$\therefore F(M) = F(x_p + \frac{1}{2}, y_p + 1)$

$\therefore F(M) = A(x_p + \frac{1}{2}) + B(y_p + 1) + C$

$\therefore F(M_N) = F(x_p + \frac{1}{2}, y_p + 2)$

$= A(x_p + \frac{1}{2}) + B(y_p + 2) + C$

$\therefore F(M_{NE}) = F(x_p + \frac{3}{2}, y_p + 2)$

$= A(x_p + \frac{3}{2}) + B(y_p + 2) + C$

We know,

$d_{init} = F(M) - F(P)$

$= A(x_p + \frac{1}{2}) + B(y_p + 1) + C - Ax_p - By_p - C$

$= Ax_p + \frac{A}{2} + By_p + B + C - Ax_p - By_p - C$

$= \frac{A}{2} + B$

$= dy/2 - dx \quad [\because A = dy \text{ and } B = -dx]$

Again, $d_N = F(M_N) - F(M)$

$= A(x_p + \frac{1}{2}) + B(y_p + 2) + C - A(x_p + \frac{1}{2}) - B(y_p + 1) - C$

$= By_p + 2B - By_p - B$

$= B$

$= -dx \quad [\because -dx = B]$

And, $d_{NE} = F(M_{NE}) - F(M)$

$= A(x_p + \frac{3}{2}) + B(y_p + 2) + C - A(x_p + \frac{1}{2}) - B(y_p + 1) - C$

$= Ax_p + \frac{3A}{2} + By_p + 2B - Ax_p - \frac{A}{2} - By_p - B$

$= A + B$

$= dy - dx$