$$n_A x_A + n_B x_B = x$$

$$n_A = \frac{x - n_B x_B}{x_A} \quad (\text{valid iff } (x - n_B x_B \not\equiv x_A = 0))$$

$$n_A y_A + n_B y_B = y$$

$$n_A = \frac{y - n_B y_B}{y_A} \quad (\text{valid iff } (y - n_B y_B \not\equiv y_A = 0))$$

$$P = 3N_A + N_B$$

$$\frac{y - n_B y_B}{y_A} = \frac{x - n_B x_B}{x_A}$$

$$x_A(y - n_B y_B) = y_A(x - n_B x_B)$$

$$x_A y - n_B x_A y_B = y_A x - n_B x_B y_A$$

$$-n_B x_A y_B + n_B x_B y_A = y_A x - x_A y$$

$$n_B(x_B y_A - x_A y_B) = y_A x - x_A y$$

$$n_B = \frac{y_A x - x_A y}{x_B y_A - x_A y_B}$$