$$V^{AB} = V^B - V^A \tag{1}$$

$$V^{AB} \cdot n = (V^B - V^A) \cdot n \tag{2}$$

$$V_1 = \begin{bmatrix} x_1 \\ y_1 \end{bmatrix}, V_2 = \begin{bmatrix} x_2 \\ y_2 \end{bmatrix} \tag{3}$$
$$V_1 \cdot V_2 = x_1 * x_2 + y_2 * y_2$$

$$V' = e * V \tag{4}$$

$$V^{AB} \cdot n = -e * (V^B - V^A) \cdot n \tag{5}$$

$$V' = V + j * n \tag{6}$$

$$Impulse = mass * Velocity \tag{7}$$
$$Velocity = \frac{Impulse}{mass} \therefore V' = V + \frac{j * n}{mass}$$

$$V'^A = V^A + \frac{j * n}{mass^A} \tag{8}$$
$$V'^B = V^B - \frac{j * n}{mass^B}$$

$$(V^A - V^V + \frac{j * n}{mass^A} + \frac{j * n}{mass^B}) * n = -e * (V^B - V^A) \cdot n \tag{9}$$
$$(V^A - V^V + \frac{j * n}{mass^A} + \frac{j * n}{mass^B}) * n + e * (V^B - V^A) \cdot n = 0$$

$$(V^B - V^A) \cdot n + j * (\frac{j * n}{mass^A} + \frac{j * n}{mass^B}) * n + e * (V^B - V^A) \cdot n = 0 \tag{10}$$
$$(1 + e)((V^B - V^A) \cdot n) + j * (\frac{j * n}{mass^A} + \frac{j * n}{mass^B}) * n = 0$$
$$j = \frac{-(1 + e)((V^B - V^A) \cdot n)}{\frac{1}{mass^A} + \frac{1}{mass^B}}$$