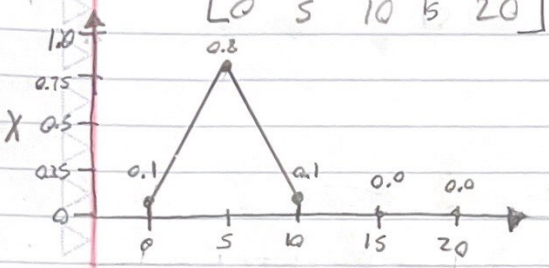
HW#7

$$\mu_Y = \begin{bmatrix} 1.0 & 1.0 & 1.0 & 0.0 & 0.0 \\ 0 & 5 & 10 & 15 & 20 \end{bmatrix} \begin{matrix} \leftarrow \text{tolerability} \\ \leftarrow \text{value} \end{matrix}$$

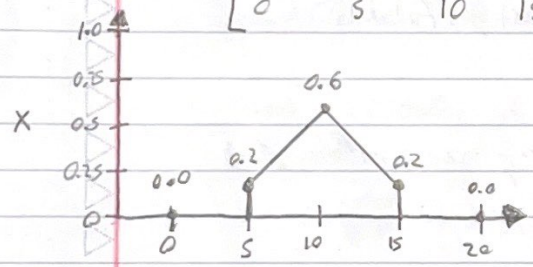
a) $p_{X_1} = \begin{bmatrix} 0.1 & 0.8 & 0.1 & 0 & 0 \\ 0 & 5 & 10 & 15 & 20 \end{bmatrix} \Rightarrow \mu_Y \otimes p_{X_1} = (1.0)(0.1) + (1.0)(0.8) + (1.0)(0.1) + (0)(0) + (0)(0)$

= PL of 1.0 or 100%



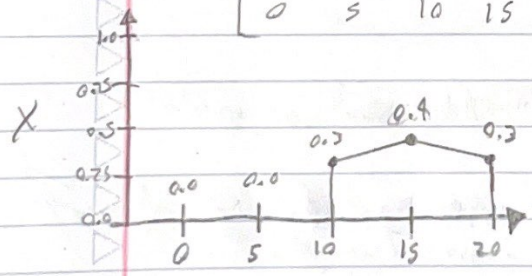
b) $p_{X_2} = \begin{bmatrix} 0.0 & 0.2 & 0.6 & 0.2 & 0.0 \\ 0 & 5 & 10 & 15 & 20 \end{bmatrix} \Rightarrow \mu_Y \otimes p_{X_2} = (1)(0) + (1)(0.2) + (1)(0.6) + (0)(0.2) + (0)(0)$

= PL of 0.8 or 80%



c) $p_{X_3} = \begin{bmatrix} 0.0 & 0.0 & 0.3 & 0.4 & 0.3 \\ 0 & 5 & 10 & 15 & 20 \end{bmatrix} = \mu_Y \otimes p_{X_3} = (1)(0) + (1)(0) + (1)(0.3) + (0)(0.4) + (0)(0.3)$

= PL of 0.3 or 30%



Discussion: - p_{X_1} had a performance level of 1, which is optimal. Operations should follow the operating procedure of X_1.

- p_{X_2} had a PL of 0.8, which is fairly tolerable, but markedly worse than X_1.
- p_{X_3} had a PL of 0.3, which is horrible & should be avoided @ all costs.