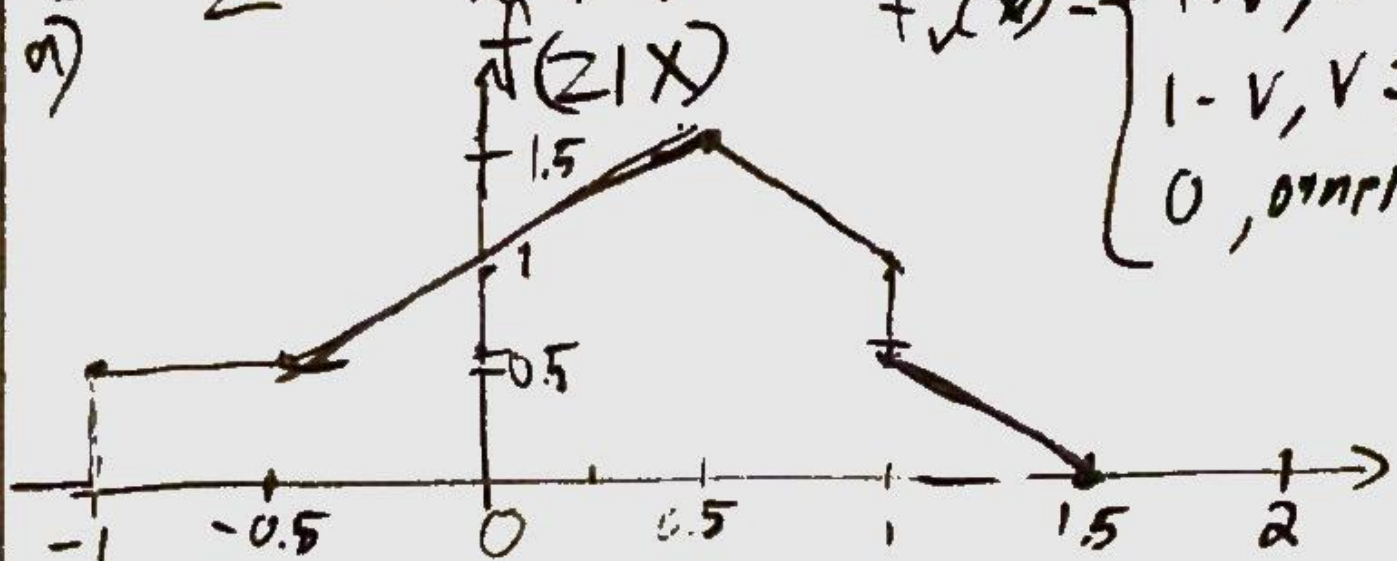
MECH 6325 HW 1

$$f_x(x) = \begin{cases} 0.5, & x = [-1, 1] \\ 0, & \text{otherwise} \end{cases}$$

$$f_v(v) = \begin{cases} 1+v, & v = [-1, 0] \\ 1-v, & v = [0, 1] \\ 0, & \text{otherwise} \end{cases}$$

9) $Z = X + V$

a)



$Z = 0.5$

b)

$$E[X \mid Z=0.5] = \int x \, f_x(x \mid z=0.5) \, dx$$

$X = 0.5 - V$ → $V = 0$

$$\boxed{X = 0.5}$$