

- S.1. a) $P(-3 < X \leq 4) = 1 - (0.3 + 0.4) = 0.3 \leftarrow 4$
 b) $P(3 < X \leq 76) = 0.4 \leftarrow 4$
 c) $P(X = -22) = 0.3 \leftarrow 4$
 d) $P(X = 1) = 0 \leftarrow 5$
 e) $P(-\infty < X \leq -10) = 0.3 \leftarrow 4$
 f) $f_X(5) = P(X \leq 5) = 1 - 0.4 = 0.6 \leftarrow 4$

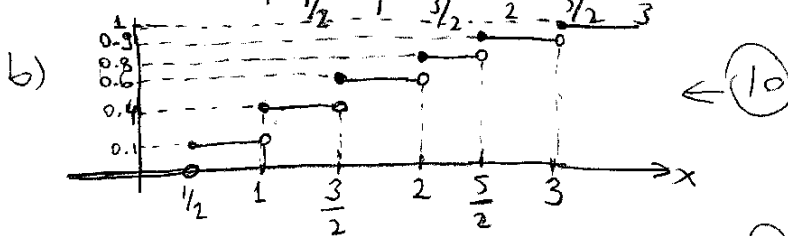
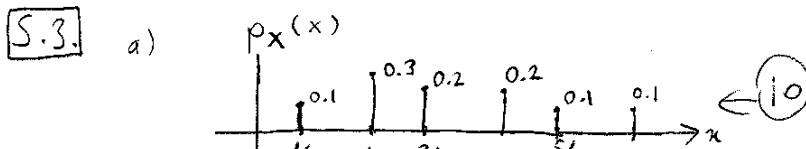
S.2. $P_Y(y) = \int_0^1 4xy \, dx = 4y \frac{x^2}{2} \Big|_0^1 = 2y(1-y^2), 0 \leq y \leq 1$

Try to
calculate
since
 $P_X \neq P_Y$
10

$P_X(x) = \int_0^y 4xy \, dy = 4x \frac{y^2}{2} \Big|_0^y = 8x^3, 0 \leq x \leq 1.$

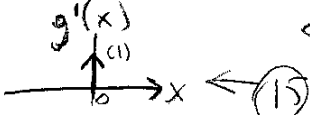
$P_{X,Y}(x,y) \neq P_X(x) \cdot P_Y(y)$, $X \neq Y$ are dependent

For (in) correlatedness: check $E(X \cdot Y) \stackrel{?}{=} E(X) \cdot E(Y)$.
 write this 5



c) $P(A) = P(\{x | x \leq 2\}) = F_X(2) = 0.8 \leftarrow 5$

S.4. a) CDF cannot be negative $\rightarrow 5$

b)  c) CDF should be non-decreasing. $\downarrow 5$