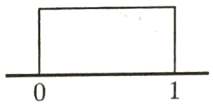
quiz 12
math2228
u new haven
11 oct 2019

name: Solution

1 (10 points). Let X be a continuous random variable with uniform distribution as depicted below.



Find the probabilities:
(a) $P(X \geq 0.35)$
(b) $P(X = 0.35)$
(c) $P(0.35 < X < 1.35)$
(d) $P(0.18 \leq X \leq 0.25 \text{or} 0.4 \leq X \leq 0.5)$
(e) X is not in the interval 0.4 to 0.8

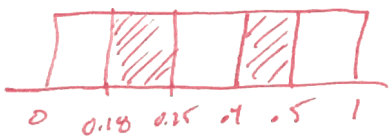
(a) 

$P(X \geq 0.35) = 1 - 0.35 = \underline{0.65}$

(b) $P(X = 0.35) = \underline{0}$

(c) 

There is no probability beyond $X = 1$, so
$P(0.35 < X < 1.35) = P(0.35 < X < 1) = 1 - 0.35 = \underline{0.65}$

(d) 

$P(0.18 \leq X \leq 0.25 \text{ or } 0.4 \leq X \leq 0.5)$
$= P(0.25 - 0.18) + (.5 - 0.4)$
$= 0.07 + 0.1$
$= \underline{0.17}$

(e) 

$P((0.4 < X < 0.8)^c) = 1 - P(.4 \leq X < .8)$
$= 1 - (0.8 - 0.4) = 1 - .4 = \underline{0.6}$