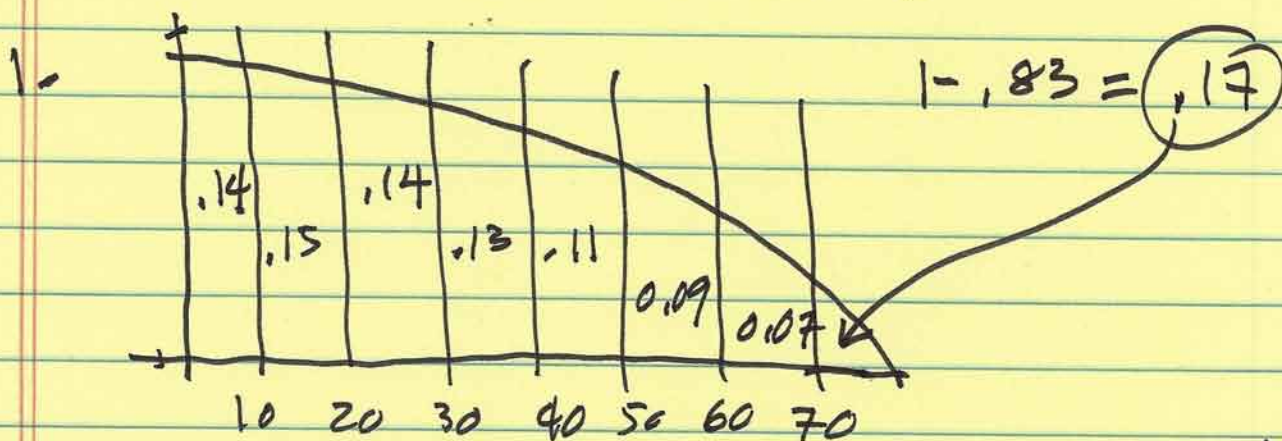


NORMAL RANDOM VARIABLES KING

6.2 p ~~204~~ ²⁶⁴ # 1, 2, 3, 6, 7



(READ CHART)

Ⓐ LESS THAN 20

$$10 < X < 20 \quad .14 + .15 = \underline{\underline{.29}} \quad (56)$$

Ⓑ LESS THAN 40

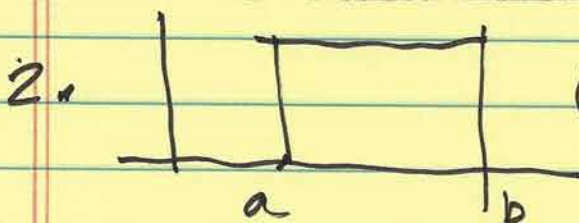
$$10 < X < 20 < 30 < 40 \quad .14 + .15 + .14 + .13 = \underline{\underline{.56}}$$

Ⓒ MORE THAN 50

$$X > 50 + X > 60 + X > 70 \quad .09 + .07 + .17 = \underline{\underline{.33}}$$

Ⓓ BETWEEN 40 + 70

$$40 < X < 70 \quad .11 + .09 + .07 = \underline{\underline{.27}}$$



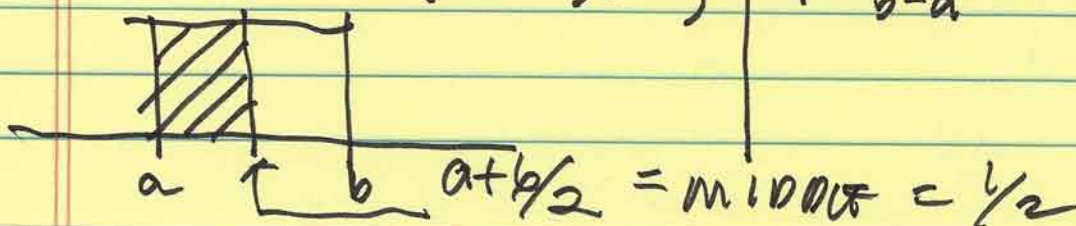
Ⓐ why is height of curve $\frac{1}{b-a}$

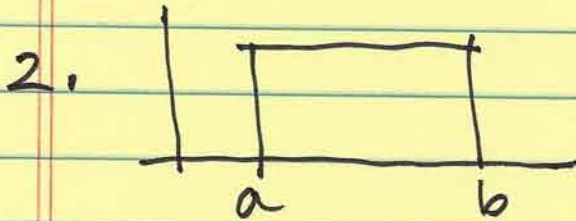
$$\text{AREA MUST} = 1 = \text{HEIGHT} \times (b-a)$$

$$\text{HEIGHT} \times \text{LENGTH}$$

$$\left(\frac{1}{b-a}\right) = H \quad \text{SOLVE FOR } \underline{\underline{H}}$$

$$Ⓐ P(X \leq (a+b)/2) \quad \left| \quad 1 = \frac{1}{b-a} \times \frac{(a+b)}{2} - a = \text{AREA}$$





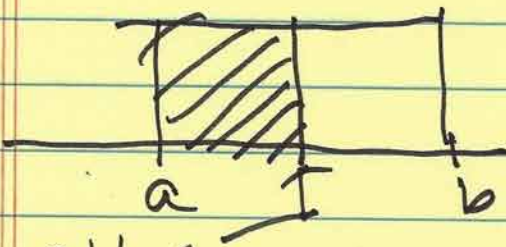
⊙ Why is height of curve = $\frac{1}{b-a}$

$$\text{AREA MUST} = 1 = \text{HEIGHT} \times \text{WIDTH}$$

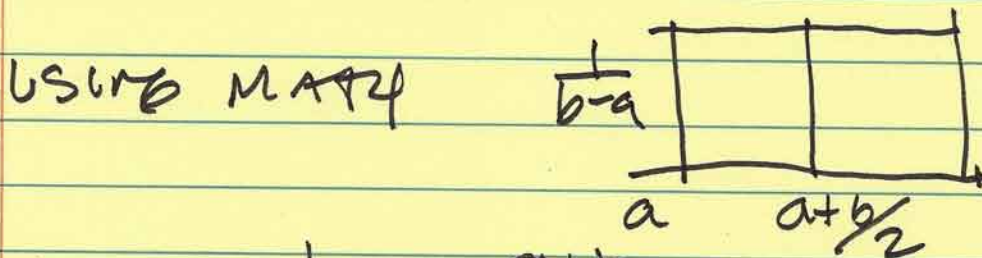
$$\frac{1}{b-a} = H \times (b-a) \quad \frac{1}{b-a}$$

$$\frac{1}{b-a} = H$$

⊙ $x = \frac{a+b}{2}$



$$\frac{a+b}{2} = \text{AVG} = \text{MIDPOINT} = \frac{1}{2}$$

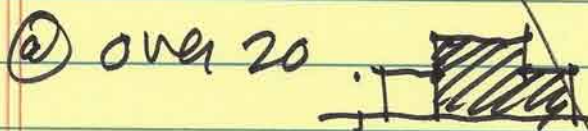
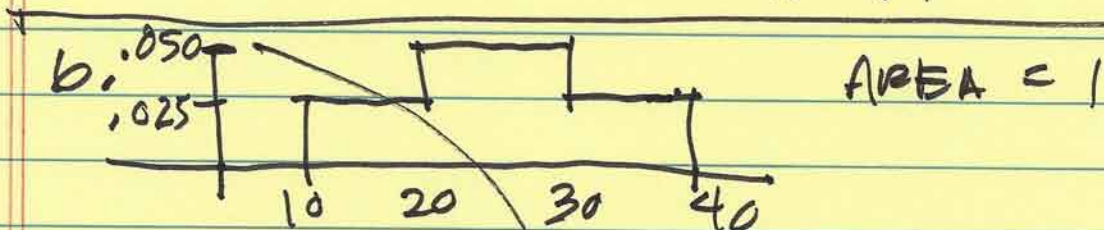
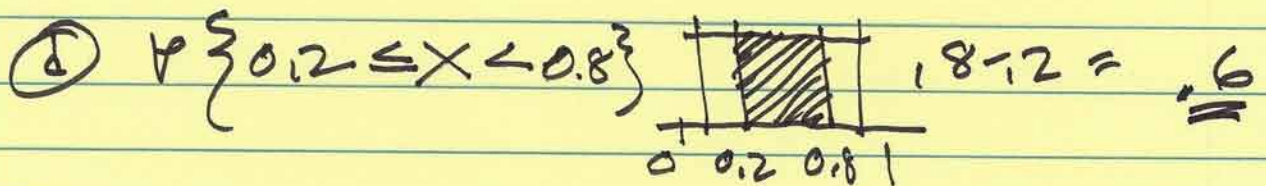
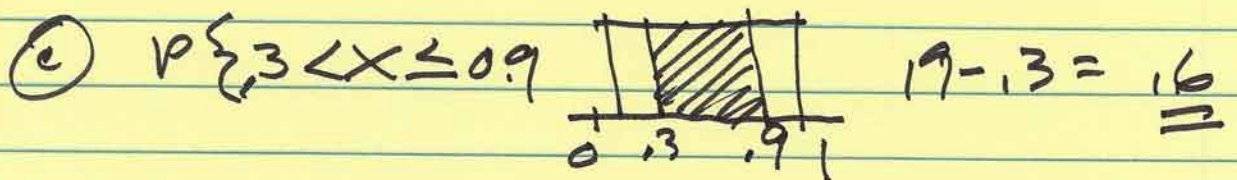
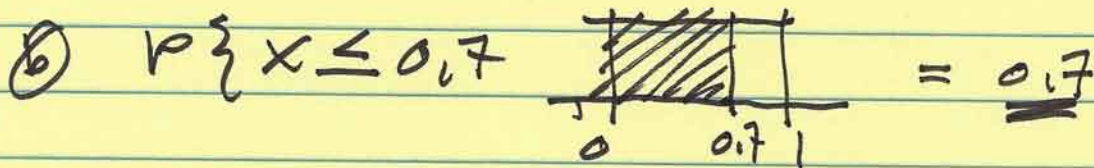
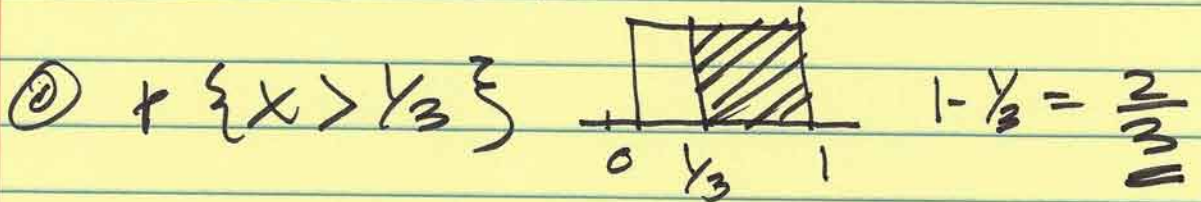
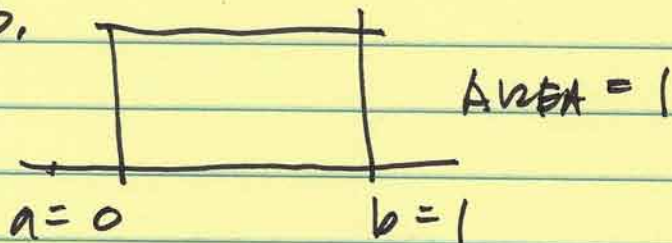


$$\text{AREA} = \frac{1}{b-a} \times \frac{a+b}{2} - a$$

$$= \frac{a+b}{2(b-a)} - a = \frac{1}{2}$$

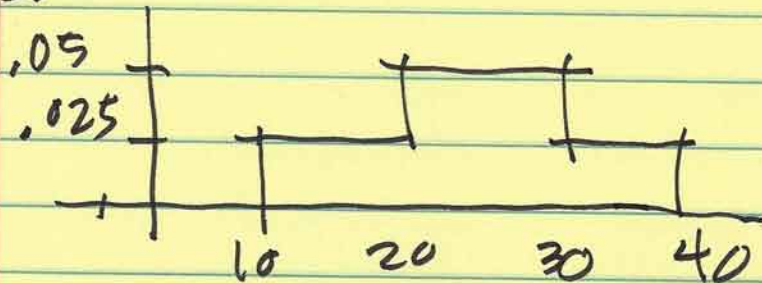
$$= \frac{a+b}{2} - a = \frac{1}{2}$$

#3.



SEE
NEXT
PAGE

#6.



$$\sum \text{Area} = 1$$

② $x < 20$

$$(30-20) \times 0.05 = 0.50$$
$$+ (40-30) \times 0.025 = 0.25$$

$$0.75$$
$$\text{or } 1 - (20-10) \times 0.025 = 1 - (10) \times 0.025 = 0.75$$

③ $x < 25$

$$= \frac{1}{2} \text{ IN THE MIDDLE}$$

$$\text{or } (20-10)(0.025) + (25-20)(0.05)$$
$$0.25 + 0.25 = 0.5$$

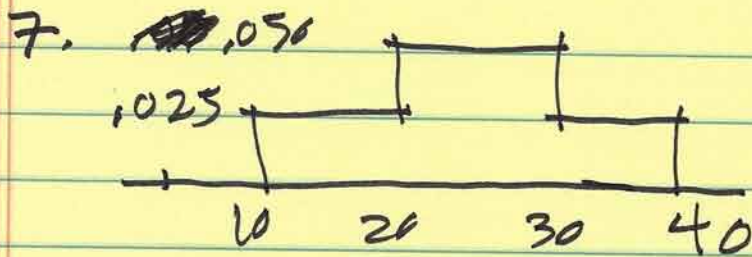
④ $15 < x < 35$

$$1 - (20-10)(0.025) = 1 - (10)(0.025) = 1 - 0.25 = 0.75$$

$$\text{or } (20-15)(0.025) + (30-20)(0.05) + (35-30)(0.025)$$
$$0.125 + 0.5 + 0.125 = 0.75$$

⑤ more than 35

$$(40-35)(0.025)$$
$$5(0.025) = 0.125$$



① $P\{20 < X < 30\}$

$$\begin{aligned} & (30-20)(.050) \\ & (10)(.025) = .50 \end{aligned}$$

② $P\{X > 50\} = \emptyset$

OFF THE CHART
OUTSIDE OF AREA = 1

③ $P\{20 < X < 40\}$

$$\begin{aligned} & (30-20)(.05) = .50 \\ & (40-30)(.025) = .25 \\ & \hline & .75 \end{aligned}$$

OR $1 - (20-10)(.025) = 1 - (10)(.025) = .75$

④ $P\{15 < X < 25\}$

$$\begin{aligned} & (20-15)(.025) = .125 \\ & (25-20)(.05) = .25 \\ & \hline & .375 \end{aligned}$$