Alex Beckwith Math 855 HW4

(34) Let
$$f(x) = \frac{1+\alpha x}{2}$$
 for $-1 \le x \le 1$ and $f(x) = 0$ otherwise

if
$$f(x)$$
 is a density, then
$$F(x) = \int \frac{1+dx}{dx} dx = 1$$

$$= \frac{1}{2}x + \frac{dx^{2}}{4} \Big|_{-1}^{1} = \frac{1}{2} + \frac{d}{4} - \left(\frac{1}{2} + \frac{d}{4}\right) = 0$$

$$\text{coff}$$

(a) The segment. Untam P(longar/2 > shorter)
$$P(x/\frac{3}{3}) + P(x/\frac{3}{3}) = |-P(\frac{1}{3} + x + 2\frac{3}{3})|$$

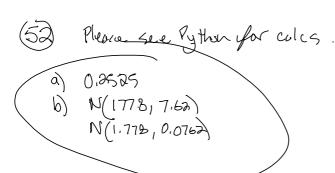
$$CX = |-\int_{\frac{1}{2}-q}^{\frac{1}{2}} dx = |-(\frac{3}{3} - \frac{1}{3})| = \frac{2}{3}$$
(Also solved experiments)
in Python)

$$\begin{vmatrix} z & z & z & z & z \\ -z & z & z & z & z \\ -z & z & z &$$

In(.95) = -2

(46)
$$T = \exp \left(\frac{1}{1 - e^{-2x}} \right)^{1} = 0.05$$
 where 2^{2} .

 $1 - e^{-2x} \Big|_{0}^{1} = 0.05$
 $0.95 = e^{-2x}$
 $1 = -2n(0.95)$



$$X \sim N(\mu, \sigma^{\lambda}) \quad \text{(ind c in terms of or}$$

$$Such that P(\mu-ce Xe \mu+c) = 0.95$$

$$0.95 = \Phi(\frac{b-\mu}{\sigma}) - \Phi(\frac{a-\mu}{\sigma}) \quad \text{where } a=M-c$$

$$= \Phi(\frac{a+c-\lambda}{\sigma}) - \Phi(\frac{a-c-\lambda}{\sigma})$$

$$= \Phi(\frac{c}{\sigma}) - \Phi(\frac{c}{\sigma}) \quad \text{where } a=M-c$$

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$$= \Phi(\frac{a+c-\lambda}{\sigma}) - \Phi(\frac{a-c-\lambda}{\sigma}) \quad \text{where } a=M-c$$

$$= \Phi(\frac{a-c-\lambda}{\sigma}) - \Phi(\frac{a-c-\lambda}{\sigma}) \quad \text{where } a=M-c$$

$$= \Phi(\frac{a-c-\lambda}{\sigma}$$

$$\begin{array}{lll}
\boxed{\text{In unitarm on } [-1,1], \text{ find obtasity of } U^2} \\
\hline{\text{Fig.}}(U) &= P(U^2 \leq U) \leq P(-JU \leq U) \leq JU) \text{ when } U \geq 0 \\
& \int_{U}^{\infty} \frac{1}{U - u} dx = \frac{1}{2}(X) \Big|_{-JU}^{JU} \\
& = \frac{1}{2}(JU + JU)
\end{array}$$

$$\begin{array}{lll}
\boxed{\text{lo find deux.}}_{A} &= JU$$

(d). Togramal find the classity timetor of
$$y=e^{z}$$

when $z = N(M, a^{z})$

elemsity function of $z = g(x)$
 $P(y=y)$
 $= P(e^{z}=y)$
 $= P(z = y)$
 $= P($

find density function of ara.

xe (0,00) Fix) front of Front =0