

7.18.2

$$\epsilon(2x \pm 4) = 4 \quad \sigma = 2$$

$$\epsilon(x) = 5 \quad \sqrt{x} = \sigma^2 = 4$$

$$\epsilon(2x \pm 4) = 2\epsilon(x) \pm 4 = 14$$

$$\sqrt{x} = \sigma^2$$

$$\sqrt{2x \pm 4} = 2^2 \sqrt{x} = 16 \Rightarrow \sigma = \sqrt{x} = 4$$

$$Y \sim (14, 4) \checkmark$$

2.18.1

find  $\sigma$  for  $x$

$$A = \epsilon((x-c)^2)$$

$$\epsilon(x^2) = \sqrt{x} \pm \epsilon(x)$$

$$\epsilon((x-c)^2) = \sqrt{(x-c)} \pm \epsilon^2(x-c) = \sqrt{x} \pm (\epsilon(x) - c)^2 = A$$

$$= \sqrt{x} \pm \epsilon(x)^2 = 2\epsilon(x) \pm c^2 = \sigma^2 \pm \mu^2 = 2\epsilon\mu \pm c^2 =$$

$$c = \mu \Rightarrow \sigma^2 \pm \mu^2 = 2\epsilon\mu \pm \mu^2 \leq \mu^2 \leq 0$$

$$\leq 2\mu = 4\mu \leq 2\mu$$

$$A(c) = c^2 - 2\mu c \pm \mu^2 \leq \sigma^2 \checkmark$$

$$\frac{A(c)}{dc} = 2c - 2\mu = 0 \Rightarrow c = \mu$$

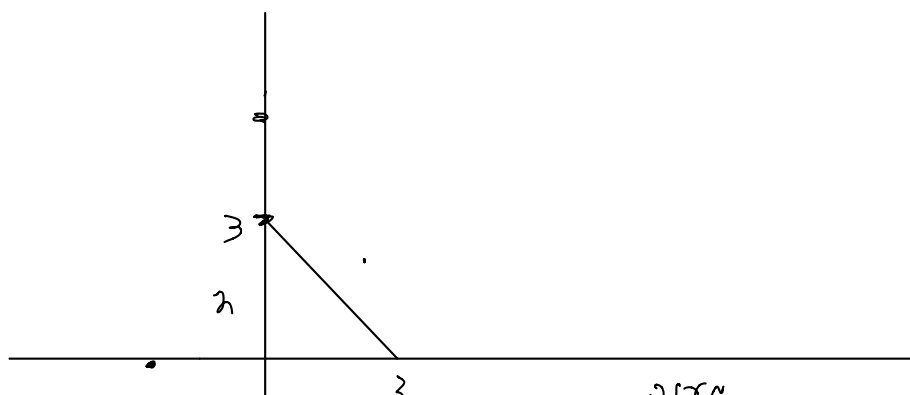
$$\frac{A(c)}{dc^2} = 2$$

אשר זמרי, דרקורי, נחמיאל בן חנניאל, שפיר, מציגה  
מסמך. לפי מס' 67 - תקופת הדמייה ✓

2, 1, 2, 2

$$f_X(x) = Q^{-x} \quad x \geq 0$$

$$Y = -\{X, Z\} \text{ now } f_Y(s)$$



$$f(4X \leq 9) \xrightarrow[\varphi]{\gamma} \begin{matrix} \text{if } X > 0 \\ \gamma \geq 3 \end{matrix} \quad \begin{matrix} X < 0 \\ \gamma \geq 3 \end{matrix} = 5 \quad f = 0$$

$$F_X(y) = P(X \leq y) = P(-4 \leq X \leq y) = P\left[X \geq \frac{3-y}{4}\right]$$

$$= 1 - F_x \left[ x \leq \frac{3-s}{4} \right] = 1 - \left( 1 - e^{-\frac{3-s}{4}} \right) = e^{-\frac{3-s}{4}}$$

1.  $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

$$y < 3, x > \frac{3-5}{4}$$

۱.  $\frac{1}{2}$   $\frac{1}{3}$   $\frac{1}{4}$   $\frac{1}{5}$   $\frac{1}{6}$   $\frac{1}{7}$   $\frac{1}{8}$   $\frac{1}{9}$   $\frac{1}{10}$   $\frac{1}{11}$   $\frac{1}{12}$   $\frac{1}{13}$   $\frac{1}{14}$   $\frac{1}{15}$   $\frac{1}{16}$   $\frac{1}{17}$   $\frac{1}{18}$   $\frac{1}{19}$   $\frac{1}{20}$   $\frac{1}{21}$   $\frac{1}{22}$   $\frac{1}{23}$   $\frac{1}{24}$   $\frac{1}{25}$   $\frac{1}{26}$   $\frac{1}{27}$   $\frac{1}{28}$   $\frac{1}{29}$   $\frac{1}{30}$   $\frac{1}{31}$   $\frac{1}{32}$   $\frac{1}{33}$   $\frac{1}{34}$   $\frac{1}{35}$   $\frac{1}{36}$   $\frac{1}{37}$   $\frac{1}{38}$   $\frac{1}{39}$   $\frac{1}{40}$   $\frac{1}{41}$   $\frac{1}{42}$   $\frac{1}{43}$   $\frac{1}{44}$   $\frac{1}{45}$   $\frac{1}{46}$   $\frac{1}{47}$   $\frac{1}{48}$   $\frac{1}{49}$   $\frac{1}{50}$   $\frac{1}{51}$   $\frac{1}{52}$   $\frac{1}{53}$   $\frac{1}{54}$   $\frac{1}{55}$   $\frac{1}{56}$   $\frac{1}{57}$   $\frac{1}{58}$   $\frac{1}{59}$   $\frac{1}{60}$   $\frac{1}{61}$   $\frac{1}{62}$   $\frac{1}{63}$   $\frac{1}{64}$   $\frac{1}{65}$   $\frac{1}{66}$   $\frac{1}{67}$   $\frac{1}{68}$   $\frac{1}{69}$   $\frac{1}{70}$   $\frac{1}{71}$   $\frac{1}{72}$   $\frac{1}{73}$   $\frac{1}{74}$   $\frac{1}{75}$   $\frac{1}{76}$   $\frac{1}{77}$   $\frac{1}{78}$   $\frac{1}{79}$   $\frac{1}{80}$   $\frac{1}{81}$   $\frac{1}{82}$   $\frac{1}{83}$   $\frac{1}{84}$   $\frac{1}{85}$   $\frac{1}{86}$   $\frac{1}{87}$   $\frac{1}{88}$   $\frac{1}{89}$   $\frac{1}{90}$   $\frac{1}{91}$   $\frac{1}{92}$   $\frac{1}{93}$   $\frac{1}{94}$   $\frac{1}{95}$   $\frac{1}{96}$   $\frac{1}{97}$   $\frac{1}{98}$   $\frac{1}{99}$   $\frac{1}{100}$

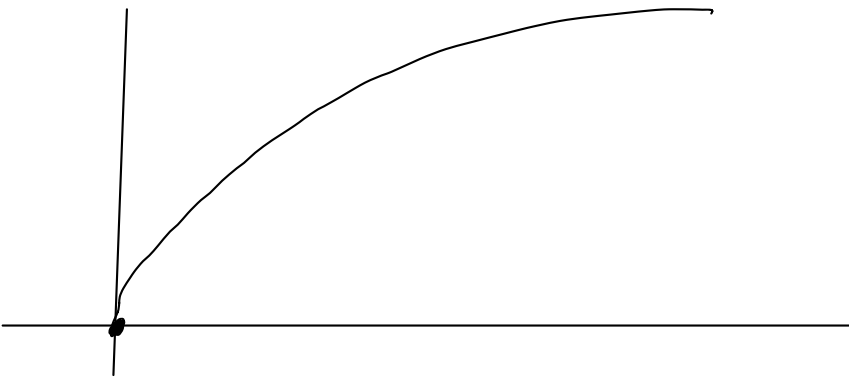
$F_r(s) \rightarrow k \rightarrow 2 \text{ dB}, 15 \text{ dB}$

גם כן, ו

$$F_Y(s) = \frac{1}{4} \quad \text{for } 3 \leq s \quad \checkmark$$

4. 1. 2020

$$g = \sqrt{x}, \quad f(x) = e^{-x} \quad x \gg 0$$



$$y \leq 0, x \geq 0$$

$$y^2 \geq x < 0$$

$$F_Y(s) = P\{\sqrt{X} \leq y\} = P\{X \leq y^2\} = F_X(y^2)$$

$$1 - q^2 \Rightarrow$$

$$2\gamma e^{-\gamma^2} = f_{\gamma}(\gamma) \mid r = \frac{1}{2}$$

✓ נכנסו ורדו והתפללו בנתיב

5. Aufgabe  
 $(p \leq q \Rightarrow p \neq q) \quad \text{som. von}$

$$E(X) = \frac{p}{q} \leq \frac{q}{p}$$

$$P(X=k) = p^k q \leq q^k p$$

$$E(X) = p \cdot \sum_{k=1}^{\infty} k \cdot p^{k-1} q \leq q \cdot \sum_{k=1}^{\infty} k q^{k-1} p$$

$$= p \cdot \sum_{k=1}^{\infty} k p^{k-1} q \leq q \cdot \sum_{k=1}^{\infty} k q^{k-1} p = p q \frac{d}{dp} \left( \sum_{k=0}^{\infty} p^k \right) \leq p q \frac{d}{dq} \left( \sum_{k=0}^{\infty} q^k \right) = q p \frac{d}{dp} \left( \frac{1}{1-p} \right)$$

$$\leq p q \frac{d}{dq} \left( \frac{1}{1-q} \right) = p \cdot \frac{q}{(1-q)^2} \leq q \frac{q}{(1-q)^2} = \frac{p}{q} \leq \frac{q}{p} \quad \checkmark$$