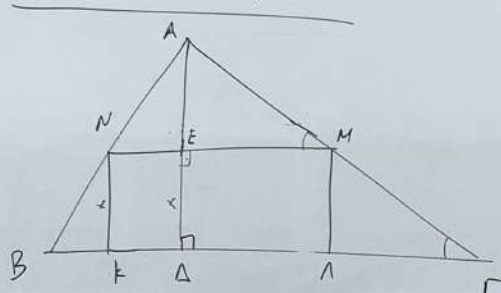
ασκ. 4 / Σελ. 29 / Βολ



$\triangle ANM \sim \triangle AB\Gamma$ $\quad \frac{AM}{A\Gamma} = \lambda = \frac{NM}{B\Gamma}$

$\triangle AEM \sim \triangle A\Delta\Gamma \rightarrow$ $\quad \frac{AE}{A\Delta} = \frac{AM}{A\Gamma} = \lambda = \frac{NM}{B\Gamma}$

$(B\Gamma) = 10$

$(A\Delta) = 5$

$(NK) = x$

$x'(t) = 1\ \mu/s$

$E'(t_0) =$

$\rho'(t_0) =$

t_0: Ε μέσο ΑΔ

$\frac{AE}{A\Delta} = \frac{NM}{B\Gamma} \Leftrightarrow$

$\frac{5-x}{5} = \frac{NM}{10} \Leftrightarrow$

$NM = \frac{10 \cdot (5-x)}{5} = 2(5-x)$

(δ) $\lim_{x \to +\infty} \dfrac{f^{-1}\left(\frac{1}{x}\right) - 1}{f\left(1 + \frac{1}{x}\right)} =$

$f^{-1}(0) = 1$

$(f^{-1})'(0) = \frac{1}{11}$

$\lim_{u \to 0^+} \dfrac{f^{-1}(u) - 1}{f(1+u)} =$

$\lim_{u \to 0^+} \dfrac{\frac{f^{-1}(u) - 1}{u}}{\frac{f(1+u)}{u}} = \dfrac{(f^{-1})'(0)}{f'(1)}$

$(f^{-1})'(0) = \lim_{x \to 0} \dfrac{f'(x) - f^{-1}(0)}{x}$

(β)

$$f\left(f^{-1}\left(\frac{m\mu f(x)}{f(x)}-1\right)-1\right)<-5 \iff$$

$$f\left(f^{-1}\left(\frac{m\mu f(x)}{f(x)}-1\right)-1\right)<f(0) \overset{f\uparrow}{\iff}$$

$$f^{-1}\left(\frac{m\mu f(x)}{f(x)}-1\right)-1<0 \iff$$

$$f^{-1}\left(\frac{m\mu f(x)}{f(x)}-1\right)<1 \overset{f\uparrow}{\iff}$$

$$f\left(f^{-1}\left(\frac{m\mu f(x)}{f(x)}-1\right)\right)<f(1) \iff$$

$$\frac{m\mu f(x)}{f(x)}-1<0 \iff$$

$$\frac{m\mu f(x)}{f(x)}<1 \quad (1)$$

για $x>1$ $\overset{f\uparrow}{\Rightarrow}$ $f(x)>f(1)=0$

$(1) \Leftrightarrow m\mu f(x)<f(x)$

για $x<1 \Rightarrow f(x)<0$

$(1) \Leftrightarrow m\mu f(x)>f(x)$

$\Leftrightarrow f(x)>0$

$\forall x\in A$ με $x\neq 1$ $\quad f(x)>0$

$\forall x\in A$ με $x\neq 1$ ισχύει ότι $f(x)>0$

$(1) \Leftrightarrow m\mu f(x)>f(x)$