4.13
7

$y = (x-1)^2 e^{-x}$

(1) $(0,1) \quad (1,0)$

(2) $n = \lim_{x\to\infty} \frac{(x-1)^2}{e^x}$ לופיטל $\frac{2(x-1)}{e^x}$ לופיטל $\frac{2}{e^x} \to 0$ $\Big\}$ $\boxed{y=0}$

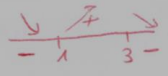
$m = \lim_{x\to\infty} \frac{(x-1)^2}{xe^x}$ לופיטל $\cdots = 0$

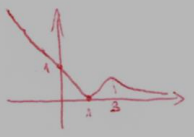
$n = \lim_{x\to-\infty} (x-1)^2 e^{-x} = \infty$

$+\infty$ לופיטל

(3) $y' = 2(x-1)e^{-x} - e^{-x}(x-1)^2 = (x-1)e^{-x}\left[2-(x-1)\right] \overset{\text{נגזרת}}{=} 0$

$x=1, \; x=3$





$\min(1,0)$
$\max(3,4e^{-3})$

עולה: $1<x<3$
יורדת: $x>3$
$x<1$