4.27

ד' א. $y'=\dfrac{\frac{1}{x}\cdot x-c-\ln x}{x^2}=\dfrac{1-c-\ln x}{x^2}$

$y''=\dfrac{-\frac{1}{x}\cdot x^2-2x(1-c-\ln x)}{x^4}=\dfrac{-3x+2xc+2x\ln x}{x^4}=\dfrac{2c-3+2\ln x}{x^3}$

$y''(e\sqrt{e})=0=2c-3+2\ln(e^{1.5})$ עפ״י הנתון יש החלפת סימן ? $x=e\sqrt{e}$ כן

$0=2c-3+3\rightarrow\boxed{c=0}$

$y'=\dfrac{1-\ln x}{x^2}=0$ קיצון

$-\ \overset{+}{0}\ \ e\ -$ $\boxed{f(e)=\frac{1}{e}}$

ב. (1) $-\frac{1}{4}=e^{2\ln\frac{3}{2}}+ae^{\ln\frac{3}{2}}+b\rightarrow-\frac{1}{4}=e^{\ln(\frac{3}{2})^2}+a\cdot\frac{3}{2}+b\rightarrow-\frac{1}{4}=\frac{9}{4}+\frac{3}{2}a+b$

$\boxed{0=5+3a+2b}$

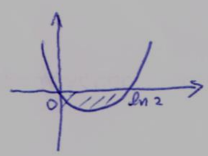
$y'=2e^{2x}+ae^x$

$0=2e^{2\ln(\frac{3}{2})}+ae^{\ln\frac{3}{2}}\ /:e^{\ln\frac{3}{2}}$

$0=2e^{\ln(\frac{3}{2})}+a$

$0=2\cdot\frac{3}{2}+a\rightarrow\boxed{a=-3}\longrightarrow\boxed{b=2}$

(2) $y=e^{2x}-3e^x+2=(e^x-1)(e^x-2)$



$-\int_0^{\ln 2}(e^{2x}-3e^x+2)dx=-\frac{1}{2}e^{2x}+3e^x-2x\Big|_0^{\ln 2}=$

$=(-\frac{1}{2}\cdot4+6-2\ln2)-(-\frac{1}{2}+3)=1.5-2\ln2$