

(A)

1) a) $f'(x) = (e^{x^6-2x})' = e^{x^6-2x} \cdot (6x^5-2)$

b) $g'(x) = \left(\frac{\ln(2-x)}{x^2+1} \right)' = \frac{-\frac{1}{2-x} \cdot (x^2+1) - \ln(2-x) \cdot 2x}{(x^2+1)^2}$

2) $f(x) = -x^2 + 4x - 3$

$f'(x) = -2x + 4 = -4$

$-2x = -8 \quad t: y = -4x + b$

$x = 4$

$f(4) = -16 + 16 - 3 = \underline{\underline{-3}}$

TEČNÝ BOD: $[4; -3]$

$-3 = -4 \cdot 4 + b$

TEČNA: $y = -4x + 13$

$b = 13$

3) $\lim_{x \rightarrow \infty} \frac{e^x}{\sqrt{x}} \stackrel{\text{L.P.}}{=} \lim_{x \rightarrow \infty} \frac{e^x}{\frac{1}{2}x^{-\frac{1}{2}}} = \lim_{x \rightarrow \infty} 2\sqrt{x} \cdot e^x$

$= 2 \cdot \sqrt{\infty} \cdot e^{\infty} = \underline{\underline{+\infty}}$