(B)

1. a) $f'(x) = \left(e^{x^3 - \frac{1}{x}}\right)' = e^{x^3 - \frac{1}{x}} \cdot \left(3x^2 + \frac{1}{x^2}\right)$

b) $g'(x) = \left(\frac{\sqrt{4-x}}{2x^2+1}\right)' = \frac{-\frac{1}{2\sqrt{4-x}} \cdot (2x^2+1) - 4x\sqrt{4-x}}{(2x^2+1)^2}$

2. $f(x) = 3x^2 - 7x + 4$

$f'(x) = 6x - 7 \overset{!}{=} 5$

$6x = 12$

$\boxed{x = 2}$

$f(2) = 3 \cdot 4 - 7 \cdot 2 + 4 = \underline{\underline{2}}$

$y = ax + b$

$y = 5x + b$

$2 = 5 \cdot 2 + b$

$b = -8$

Tečna: $\boxed{y = 5x - 8}$

3. $\lim\limits_{x \to 0_+} x^2 \ln x = \lim\limits_{x \to 0_+} \frac{\ln x}{\frac{1}{x^2}} \overset{\text{L.P.}}{=} \lim\limits_{x \to 0_+} \frac{\frac{1}{x}}{-\frac{2}{x^3}} =$

„$\frac{-\infty}{+\infty}$"

$= \lim\limits_{x \to 0_+} \left(-\frac{x^3}{2x}\right) = \lim\limits_{x \to 0_+} \left(-\frac{x^2}{2}\right) = \underline{\underline{0}}$