

(E)

$$(1.) f'(x) = (\sqrt{1+2x^5})' = \frac{10x^4}{2\sqrt{1+2x^5}} = \frac{5x^4}{\sqrt{1+2x^5}}$$

$$g'(x) = \left(\frac{e^{1-3x}}{x^4+2x+1} \right)' = \frac{(-3)e^{1-3x} \cdot (x^4+2x+1) - e^{1-3x} (4x^3+2)}{(x^4+2x+1)^2}$$

$$= e^{1-3x} \cdot \frac{-3x^4 - 6x - 3 - 4x^3 - 2}{(x^4+2x+1)^2} = e^{1-3x} \cdot \frac{-3x^4 - 4x^3 - 6x - 5}{(x^4+2x+1)^2}$$

$$(2.) f(x) = 2x^2 - 16x + 7$$
$$f'(x) = 4x - 16 \stackrel{?}{=} -8 \quad | +16$$
$$4x = 8$$
$$x = 2$$

$$f(2) = 2 \cdot 4 - 32 + 7 = -17$$

TEŇNÍ BOD = [2; -17]

TEŇNA : $y = ax + b$

$$y = -8x + b$$

$$-17 = -8 \cdot 2 + b$$

$$\Rightarrow b = -1$$

$$y = -8x - 1$$

$$(3.) \lim_{x \rightarrow 1} \frac{\ln x}{x^2 - 1} \stackrel{\text{L.P.}}{=} \lim_{x \rightarrow 1} \frac{\frac{1}{x}}{2x} = \frac{1}{2}$$

"0/0"