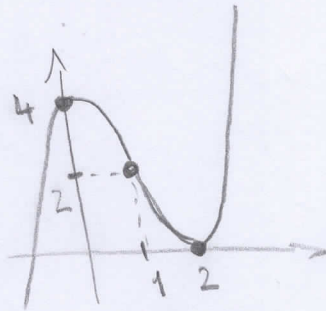


(B)

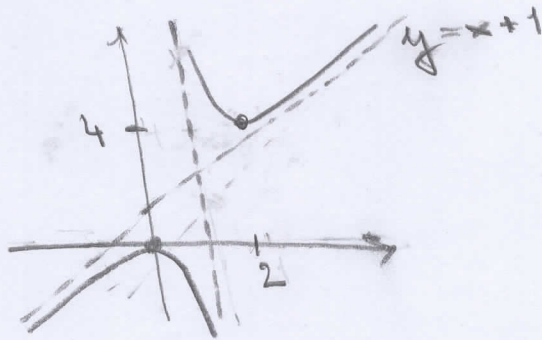
1) $f(x) = x^3 - 3x^2 + 4$

$f'(x) = 3x^2 - 6x$

$f''(x) = 6x - 6$



2) $g(x) = \frac{x^2}{x-1}$



3) $\lim_{x \rightarrow 0} \frac{x e^{2x} - x}{e^{-x} + x - 1} \stackrel{\text{L.P.}}{=} \lim_{x \rightarrow 0} \frac{e^{2x} + 2x e^{2x} - 1}{-e^{-x} + 1} \stackrel{\text{L.P.}}{=} \lim_{x \rightarrow 0} \frac{2e^{2x} + 2e^{2x} + 4e^{2x}}{e^{-x}} = \frac{2+2+0}{1} = \underline{\underline{4}}$

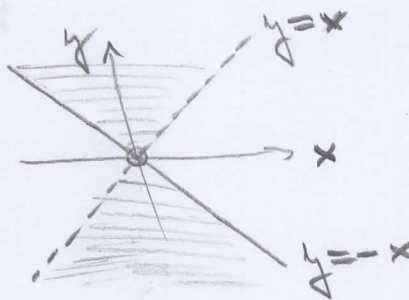
4) $f(x) = \ln(2x+1) \mid x=0 = 0$

$f'(x) = \frac{2}{2x+1} \mid x=0 = 2$

$f''(x) = -\frac{4}{(2x+1)^2} \mid x=0 = -4$

$T(x) = 2x - \frac{4}{2!} x^2 = 2x - 2x^2$

5) $f(x,y) = \sqrt{\frac{y+x}{y-x}}$ $\frac{y+x}{y-x} \geq 0$



6) $f(x,y) = \frac{y^2}{1-x} \mid [0,1] = 1$

$\frac{\partial f}{\partial x} = \frac{y^2}{(1-x)^2} \mid [0,1] = 1$

$\frac{\partial f}{\partial y} = \frac{2y}{1-x} \mid [0,1] = 2$

$2-1 = 1 \cdot x + 2(y-1)$

7) $f(x,y) = \frac{x^2 - 2xy}{x-y} = 3 \iff y = 3x - x^2$

