Worksheet #4 10/24

1) For each function, find the PERPENDICULAR to the tangent line at the given point

a) $\frac{\ln(2x-3)}{x^2+1}$ at $x=2$

b) x^3-2x^2+x+10 at $x=1$

c) 4^{x^2+x} at $x=0$

d) $\sqrt{x}\cdot e^{3x}$ at $x=1$

2) Sketch the following curves, including local extrema and concavity.

a) $e^{(x^2+3x+1)}$

b) $x\ln(x)-x$

c) $\frac{1}{e^{-x}+1}$

d) $\frac{x^{5/2}}{3x^2+2}$

3) Find the values of K that make $x=1$ a critical number. Then find if it is a relative extrema.

a) $x^k+5\sqrt{x}-3x^{-2}$

b) $\sqrt{\frac{x^3-3x^2+kx+1}{x-1}}$

c) $\sqrt{\ln(x^2-kx+10)}$