AP Calculus AB **Name**_____

Using derivatives to graph a function without a calculator #2

$$f(x)=\frac{x-5}{(x-1)^2}$$

a. Find the x intercepts. (Give answer as a coordinate)

b. Find the y intercepts (Give answer as a coordinate)

c. Find any asymptotes (horizontal and vertical). State the type of asymptote and the equation.

d. Find the end behavior. State answer as a limits.

e. Find the first derivative (get a common denominator).

f. Find the critical points. (hint: set numerator=0 and denominator = 0)

g. Use the critical points to find any max/mins. (hint: use a sign line)

h. State intervals of increase and decrease.

i. Find the second derivative (get a common denominator).

j. Find all possible points of inflection. (hint: numer = 0 and denom = 0)

k. Find intervals of concavity. (hint: use a sign line)

l. Sketch the graph of $f(x)$. Label intercepts, asymptotes, and max/mins.