Applications for First Derivatives.   Name_____

For the function $f(x) = \dfrac{e^x}{1+x}$ answer the following questions:

1. Is this a rational function? Why or why not.

2. For what value of x is this function undefined?

3. The derivative of this function is _____

4. This derivative of this function is positive on the intervals _____,

and therefore the function is increasing on the intervals _____.

5. The derivative of this function is negative on the intervals _____,

and therefore the function is decreasing on the intervals _____.

6. Find the equation for the line tangent to the graph of $y = \dfrac{1}{1+x^2}$ at $(-1, \frac{1}{2})$.

7. Find the equation for the line tangent to the graph of $y = \dfrac{x}{1+x^2}$ at $(3, .3)$