8. [6 points] Consider the following graph of two functions with their formulas given. The letters $A, B, r, p$ are all constants.


Compare the two quantities given by putting one of the symbols " $>$ ", "<", or "=" in the blank provided. If the relationship between the quantities cannot be determined, write "N" in the blank. You do not have to show your work.
(i) $A$ $\qquad$ B
(ii) $r \_p$
(iii) $\lim _{x \rightarrow \infty} A(1+r)^{x}-\lim _{x \rightarrow \infty} B(1+p)^{x}$
9. [10 points] Suppose $L(t)$ is a linear function, $Q(t)$ is a quadratic function, and $E(t)$ is an exponential function, each with domain all real numbers. Also, assume that $E(3)=1$. For each of the following statements, circle the correct option.
a. [2 points] The graphs of $E(t)$ and $L(t)$ intersect exactly once.
must be true could be true never true
b. [2 points] $E(-1)$ is negative.
must be true could be true never true
c. [2 points] The graphs of $Q(t)$ and $L(t)$ intersect exactly twice.
must be true could be true never true
d. [2 points] The graph of $E(t)$ is concave up.
must be true could be true never true
e. [2 points] The graphs of $Q(t)$ and $Q(t+2)-5$ intersect exactly twice.
must be true could be true never true

