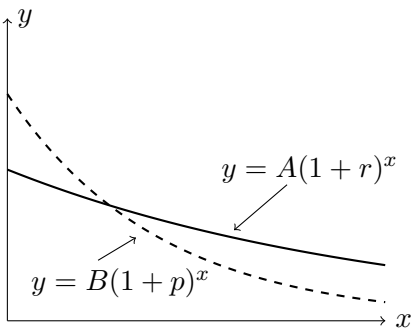
8. [6 points] Consider the following graph of two functions with their formulas given. The letters A, B, r, p are all constants.



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 ___<___ B

(ii) r ___>___ p

(iii) $\lim_{x\to\infty} A(1+r)^x$ ___=___ $\lim_{x\to\infty} B(1+p)^x$

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]