4. (15 points) Circle "True" or "False" for each of the following statements. Circle "True" only if the statement is always true. No explanation is necessary.

(a) If \( \lim_{n \to \infty} a_n = 0 \), then \( \sum_{n=0}^{\infty} a_n \) converges.

   True.   False.

(b) If \( 0 \leq a_n \leq b_n \) for all \( n \), and if \( \sum_{n=1}^{\infty} a_n \) diverges, then \( \sum_{n=1}^{\infty} b_n \) diverges.

   True.   False.

(c) If \( P_4(x) = 5 + 6(x - a) + 2(x - a)^2 + 37(x - a)^3 + 21(x - a)^4 \) is the 4th degree Taylor polynomial for \( f(x) \) about \( x = a \), then \( f^{(3)}(a) = 37 \).

   True.   False.

(d) If the power series \( \sum_{n=0}^{\infty} C_n(x - 3)^n \) converges for \( x = 1 \), then it also converges for \( x = 4 \).

   True.   False.

(e) The infinite series \( \sum_{n=1}^{\infty} \frac{3n^2+n}{n^5+3} \) converges.

   True.   False.

5. (5 points) Express the number \( x \) whose repeating decimal expansion is \( 6.17636363636363... \) as the sum of an infinite series.