LIMIT OF SEQUENCES

Name :.. School :... Time : 30 Minutes

LIMIT OF SEQUENCES

MULTIPLE CHOICES SECTION (5 points)

Câu 1. $\lim \dfrac{2n+1}{n+7}$ equals

A. 7. **B.** $\dfrac{1}{7}$. **C.** 1. **D.** 2.

Câu 2. Calculate the sum S of the infinite reverse multiplier with the first term $u_1 = 1$ common ration $q = -\dfrac{1}{2}$.

A. $S = 1$. **B.** $S = \dfrac{2}{3}$. **C.** $S = 2$. **D.** $S = \dfrac{3}{2}$.

Câu 3. Calculate the limit $I = \lim \dfrac{2n^2 - 3n + 5}{2n + n^2}$.

A. 2. **B.** $+\infty$. **C.** 0. **D.** 1.

Câu 4. $\lim \sqrt[5]{200 - 3n^5 + 2n^2}$ equals

A. $-\infty$. **B.** 1. **C.** $+\infty$. **D.** 0.

Câu 5. Given $\lim \dfrac{2n^3 + n^2 - 4}{2 + n + 4n^3} = L$ .Then $1 - L^2$ equals

A. $\dfrac{3}{4}$. **B.** 0. **C.** $\dfrac{1}{4}$. **D.** 1.

Câu 6. $\lim(-2n^{2019} + 3n^{2018} + 4)$ equals

A. -2. **B.** 2019. **C.** $-\infty$. **D.** $+\infty$.

Câu 7. The sequence with a limit equal to 0 is

A. $\left(\dfrac{5}{\pi}\right)^n$. **B.** $\left(-\dfrac{5}{3}\right)^n$. **C.** $\left(\dfrac{4}{\pi}\right)^n$. **D.** $\left(\dfrac{2}{3}\right)^n$.

Câu 8. $\lim \dfrac{\sqrt{n^3 - 2n + 5}}{3 + 5n}$ equals

A. $+\infty$. **B.** $\dfrac{2}{5}$. **C.** $-\infty$. **D.** 5.

Câu 9. Given $\lim \dfrac{2n^3 + n^2 - 4}{an^3 + 2} = \dfrac{1}{2}$ as a is real parameter. Then $a - a^2$ equals

A. -6. **B.** -12. **C.** -2. **D.** 0.

Câu 10. Given an equilateral triangle ABC with sides equals to $2a$. Construct an equilateral triangle $A_1B_1C_1$ with sides equal to the height of triangle ABC; Construct an equilateral triangle $A_2B_2C_2$ with sides equal to the height of triangle $A_1B_1C_1$ continue in this manner indefinitely. Assuming this construction can proceed infinitely. If the total area of all triangles S equals ABC, $A_1B_1C_1$, $A_2B_2C_2$, ... equals $24\sqrt{3}$ then a equals

A. 3. **B.** $\sqrt{6}$. **C.** $3\sqrt{3}$. **D.** $4\sqrt{3}$.

ESSAY SECTION (5 points)

Câu 1: Given $\lim u_n = a; \lim v_n = b$. Calculate $\lim(u_n + v_n)$ and $\lim(u_n.v_n)$.

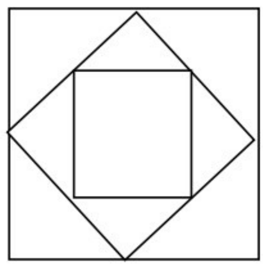
Câu 2: Calculate $\lim u_n$, with $u_n = \dfrac{5n^2 + 3n - 7}{n^2}$.

Câu 3: Calculate $\lim \dfrac{3.2^n - 5^n}{5.4^n + 6.5^n}$.

Câu 4: Calculate $\lim \dfrac{\sqrt{n^4 + 2n + 2}}{n^2 + 1}$.

Câu 5: Calculate $\lim \left(\sqrt[3]{2n - 3n^3} + n - 1\right)$.

Câu 6: Given a square $ABCD$ with side length 1. Inside this square, a second square 2, whose vertices are the midpoints of the sides of the first square, is inscribed . This process is continued as shown in the diagram below. Calculate the total perimeter of all these squares.



ANSWERS