TEST 10 QUESTIONS

Questions 1. Given the sequence (u_n) has $\lim u_n = 3$, and the sequence (v_n) has $\lim v_n = 5$. What is the $\lim(u_n.v_n) = ?$

A. 15. **B.** 8. **C.** 5. **D.** 3.

Questions 2. For sequences $(u_n), (v_n)$ and $\lim u_n = a, \lim v_n = +\infty$ then $\lim \frac{u_n}{v_n}$ equals

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

Questions 3. Which statement below is incorrect?

A. $\lim u_n = c$ ($u_n = c$ is a constant sequence). **B.** $\lim q^n = 0 \ (|q| > 1)$.

C. $\lim \frac{1}{n} = 0$. **D.** $\lim \frac{1}{n^k} = 0 \ (k > 1)$.

Questions 4. Given the sequence (u_n) satisfying $\lim u_n = -5$. The value of $\lim(u_n - 2)$ is

A. 3 **B.** -7 **C.** 10 **D.** -10

Questions 5. Calculate $L = \lim \frac{n-1}{n^3+3}$.

A. $L = 1$. **B.** $L = 0$. **C.** $L = 3$. **D.** $L = 2$.

Questions 6. The limit of $\lim \frac{3n+5}{2n-4}$ is

A. $\frac{3}{2}$. **B.** $-\frac{5}{4}$. **C.** 3. **D.** -4.

Questions 7. The limit of the sequence is $\lim \frac{2n^2-3n+1}{n^2+2n}$

A. 3. **B.** 2. **C.** 1. **D.** $-\frac{3}{2}$.

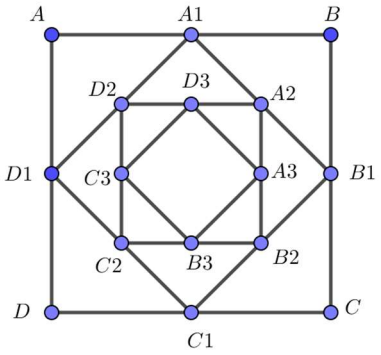
Questions 8. Find a such that $\lim \frac{an^2-3n}{9n^2+5} = \frac{2}{3}$.

A. $a = 4$. **B.** $a = 6$. **C.** $a = 8$. **D.** $a = 9$.

Questions 9. The limit of $\lim \frac{\sqrt{4n^2+1} - \sqrt{n+2}}{2n-3}$ equals

A. $\frac{3}{2}$. **B.** 2. **C.** 1. **D.** $+\infty$

Questions 10. Given a square $ABCD$ with side length a. Construct square $A_1B_1C_1D_1$ inside $ABCD$ with its side length being $\frac{1}{2}$ of the diagonal of square $ABCD$; then construct square $A_2B_2C_2D_2$ inside $A_1B_1C_1D_1$ with its side length being $\frac{1}{2}$ of the diagonal of square $A_1B_1C_1D_1$ and continue this process indefinitely. If the process of construction can go on infinitely and the total area S of all these squares $ABCD, A_1B_1C_1\mathrm{D}_1, A_2B_2C_2\mathrm{D}_2 \ldots$ equals 8, then a equals



A. 2 **B.** $\sqrt{2}$ **C.** $\sqrt{3}$ **D.** $2\sqrt{2}$