

班级: CST 01 姓名: 左逸糾 编号: 202001086 科目: Calculus A2 第 1 页

6. Sul
$$a_1 = \frac{1}{2}$$
 $a_2 = \frac{3}{4}$ $a_3 = \frac{7}{4}$ $a_4 = \frac{15}{16}$

10. Sec.
$$a_1 = -2$$
 $a_2 = -1$ $a_3 = -\frac{2}{3}$ $a_4 = -\frac{1}{2}$ $a_5 = -\frac{1}{5}$ $a_6 = -\frac{1}{3}$ $a_7 = -\frac{2}{7}$

$$a_8 = -\frac{1}{4} \quad a_9 = -\frac{2}{9} \quad a_{10} = -\frac{1}{5}$$

12. Sul.
$$a_1 = 2$$
 $a_2 = -1$ $a_3 = -\frac{1}{2}$ $a_4 = \frac{1}{2}$ $a_5 = -1$ $a_6 = -2$ $a_7 = 2$

$$a_8 = -1$$
 $a_9 = -\frac{1}{2}$ $a_{10} = \frac{1}{2}$

18. Sol.
$$a_n = \frac{2n-5}{n-(n+1)}$$
, $h=1,2,...$

28. Sel.
$$\lim_{n\to\infty} \frac{n+(-1)^n}{n} = \lim_{n\to\infty} 1 + \frac{(-1)^n}{n} = 1$$
, fant is converges.

34. Sol.
$$\lim_{n \to \infty} \frac{1-n^3}{70-4n^2} = \lim_{n \to \infty} \frac{\frac{1}{n^2}-n}{\frac{70}{n^2}-4} = \infty$$
, [an] is diverges.

36. See
$$\lim_{n\to\infty} (-1)^n (1-\frac{1}{n})$$
 ob not exist, which means $\{a_n\}$ is diverges.

48 Sal.
$$\lim_{n \to \infty} \frac{3^{h}}{n^{3}} = \lim_{n \to \infty} \frac{3^{h} \ln 3}{3n^{2}} = \lim_{n \to \infty} \frac{3^{h} (\ln 3)}{6n} = \lim_{n \to \infty} \frac{3^{h} (\ln 3)}{6} = \infty$$
, {and is diverges

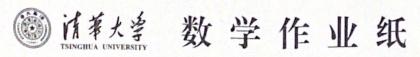
$$\frac{1}{2}$$
6. Sol $\lim_{n \to \infty} \int_{\mathbb{R}^2} \int_{\mathbb{$

62. Sol
$$\lim_{n\to\infty} 3^{\frac{2n+1}{n}} = \lim_{n\to\infty} 3^2 \cdot 3^{\frac{1}{n}} = 9 \times 1 = 9$$
, {and is converges.

78. Sol.
$$\lim_{n \to \infty} \frac{1-\cos n}{n} = \lim_{n \to \infty} \frac{1-\cos n}{n} = \lim_{n \to \infty} \sin n = 0$$
, $\{a_n\}$ is converges.

80 Sul
$$\ln a_n = \frac{1}{n} \ln (3^n + 5^n)$$

 $\lim_{n \to \infty} \ln a_n = \lim_{n \to \infty} \frac{\ln (3^n + 5^n)}{n} = \lim_{n \to \infty} \frac{3^n \ln 3 + 5^n \ln 5}{3^n + 5^n} = \lim_{n \to \infty} \frac{(\frac{3}{5})^n + 1}{(\frac{3}{5})^n + 1} = \frac{0 + \ln 5}{0 + 1} = \ln 5$
So $\lim_{n \to \infty} a_n = e^{\ln 5} = 5$, $\{a_n\}$ is converges



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94. Sal. As sequence is converges, we can let $\lim_{n\to\infty} a_n = L$ then $\lim_{n\to\infty} a_{n+1} = \lim_{n\to\infty} \sqrt{8+2a_n} \Rightarrow L = \sqrt{8+2\lim_{n\to\infty} a_n} \Rightarrow L = \sqrt{8+2L} \Rightarrow L^2-2L-8=0$ $\Rightarrow L=-2$ or L=4, as $a_n>0$, we have $\lim_{n\to\infty} a_n=L=4$

98. Sal. Let $a_1 = 1$, $a_{mi} = \sqrt{1+a_m}$ (n=1,2,...) and $\lim_{n\to\infty} a_n = L$. $\lim_{n\to\infty} a_{n+1} = \lim_{n\to\infty} \sqrt{1+a_n} = 7L = \sqrt{1+\lim_{n\to\infty} a_n} \Rightarrow L = \sqrt{1+L} \Rightarrow 2^2 - L - 1 = 0$ $\Rightarrow L = \frac{1-\sqrt{5}}{2} \quad \text{or} \quad L = \frac{1+\sqrt{5}}{2}, \quad \text{as} \quad \text{and} \quad \text{im} \quad a_n = L = \frac{1+\sqrt{5}}{2}$