

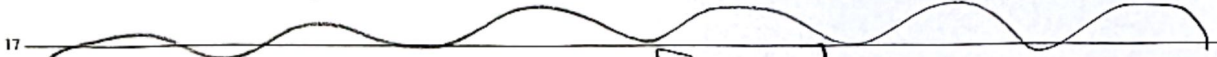
2
3
4
5 $\lim_{n \rightarrow \frac{\pi}{2}} \left[\left(\frac{1}{n} \right)^n - 1 \right] = [0^-] = -1$ ✓



7
8
9 (2) $\lim_{n \rightarrow \frac{1}{n}} [n \ln n - n]$

10
11 $n \rightarrow \frac{1}{n}$
12 (3) $\left(\frac{1}{n} \right)^+ \wedge \left(\frac{1}{10} \right)^n - \frac{1}{10} = 1,1 - 0,9 = 1^+ \rightarrow [1^+] = 1$

13
14
15 $\left(\frac{1}{n} \right)^- \wedge \left(\frac{1}{10} \right)^n - \frac{1}{10} = 0,9 - 0,9 = 0^+ \rightarrow [0^+] = 0$



17 (4) $\lim_{n \rightarrow \frac{1}{n}} \left[\ln n - \omega + \frac{n}{(-0,9)^n} \right] \rightarrow [1,1^+]$

18
19
20 $n \rightarrow \frac{1}{n}$ $\lim_{n \rightarrow \frac{1}{n}} \left[-\frac{1}{(-0,9)^n} \right] \rightarrow [-0,9]$

21
22
23 $= \frac{\ln n + n}{14n + 4} = \frac{-\omega + n}{-1 + 4} = \frac{-1}{3} = -\frac{1}{3}$



25
26 (5) $\lim_{n \rightarrow \frac{1}{n}} \frac{n}{\sqrt{n^2 + n}} - \frac{n}{\sqrt{n^2 + n}} = \frac{1 - n}{n} = \frac{1}{n} = 0$



Q. Hop

$$r - \frac{v}{r\sqrt{x}} = r - \frac{c}{r} = \frac{r - c}{r}$$

$$r = \frac{r}{\sqrt{x+1}}$$

$$r\sqrt{x+1}$$

1/5

Q. Hop

$$\frac{b}{r\sqrt{bx+c}} = \frac{1}{r} \rightarrow rb = \sqrt{bx+c}$$

$$x=0 \rightarrow$$

$$rb = \sqrt{c}$$

✓

$$x \rightarrow \infty \rightarrow \frac{c}{x} \rightarrow 0 \rightarrow x=0 \rightarrow a + \sqrt{c} = 0 \rightarrow a = -\sqrt{c}$$

$$\frac{a}{c} = \frac{-\sqrt{c} + \frac{\sqrt{c}}{r}}{c} = \left(\frac{-1}{r} \right) \checkmark$$

سوال ۱)

$$\lim_{x \rightarrow (-2)^+} f(x) = \lim_{x \rightarrow (-2)^-} f(x)$$

$$\lim_{x \rightarrow (-2)^+} f(x) = 2 \left[1 - \frac{(-2)^+}{2} \right] + a \left[\frac{2 + (-2)^+}{3} \right] \rightarrow 2 \left[1 - (-1)^+ \right] + a \left[\frac{0^+}{3} \right] = 2$$

$$\lim_{x \rightarrow (-2)^-} f(x) = 2 \left[1 - \frac{(-2)^-}{2} \right] + a \left[\frac{2 + (-2)^-}{3} \right] \rightarrow 2 \left[2^+ \right] + a \left[\frac{0^-}{3} \right] = 4 - a$$

$$4 - a = 2 \rightarrow a = 2 \rightarrow \left[\frac{a}{3} \right] = \left[\frac{2}{3} \right] = 0$$

سوال ۳) داخل برکت عدد صحیح نمی شود ← نیازی به دو طرفه کردن نیست

$$\lim_{x \rightarrow (-\frac{1}{4})} [8x^3 - x] = \left[8 \left(-\frac{1}{4} \right)^3 - \left(-\frac{1}{4} \right) \right] = \left[-1 + \frac{1}{4} \right] \rightarrow \left[-\frac{3}{4} \right] = -1$$

سوال ۴)

$$x \rightarrow \left(-\frac{1}{4} \right)^- \rightarrow x < -\frac{1}{4} \rightarrow x^2 > \frac{1}{4} \rightarrow \frac{1}{x^2} < 4 \rightarrow \frac{3}{x^2} < 12 \rightarrow \left[\frac{3}{x^2} \right] = 11$$

$$\frac{1}{x^2} < 4 \rightarrow -\frac{1}{x^2} > -4 \rightarrow \frac{-4}{x^2} > -16 \rightarrow \left[\frac{-4}{x^2} \right] = -16$$

$$\lim_{x \rightarrow (-\frac{1}{4})^-} = \frac{10x - 5 + 1}{14x - (-1)} = \lim_{x \rightarrow (-\frac{1}{4})^-} = \frac{10x + 4}{14x + 1} = \frac{-5 + 4}{(-1)^+ + 1} = \frac{1}{0^+} = -\infty$$

$$\lim_{x \rightarrow 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \lim_{x \rightarrow 1^+} \frac{\sin^2 \pi x}{1 + \cos \pi x} \rightarrow \lim_{x \rightarrow 1^+} \frac{1 - \cos^2 \pi x}{1 + \cos^2 \pi x} =$$

$$\lim_{x \rightarrow 1^+} \frac{(1 - \cos \pi x)(1 + \cos \pi x)}{1 + \cos \pi x} = \lim_{x \rightarrow 1^+} 1 - \cos \pi x = 1 - (-1) = 2$$

سوال ۵)

$$\lim_{x \rightarrow (-r)^-} \frac{f + K\left[\frac{x}{r}\right]}{\sin x} = \frac{f - rK}{0^-} = +\infty \rightarrow f - rK < 0 \rightarrow K > \frac{f}{r} \quad (I)$$

سوال 1

$$\lim_{x \rightarrow (-r)^+} \frac{f + K\left[\frac{x}{r}\right]}{\sin x} = \frac{f - rK}{0^+} = +\infty \rightarrow f - rK > 0 \rightarrow K < \frac{f}{r} \quad (II)$$

$$\xrightarrow{(I) \wedge (II)} \frac{f}{r} < K < r \rightarrow -r < -K < -\frac{f}{r} \rightarrow [-K] = -r$$

$$1a - b = 0 \rightarrow b = 1a$$

سوال 10

$$\lim_{x \rightarrow 1} \frac{1a(\sqrt{r + \sqrt{x}} - r)}{ax - 1a} = \frac{1a(\sqrt{r + \sqrt{x}} - r)}{ax - 1a} \times \frac{\sqrt{r + \sqrt{x}} + r}{\sqrt{r + \sqrt{x}} + r} =$$

$$\lim_{x \rightarrow 1} \frac{1a(\sqrt{x} - r)}{a(x-1) \times r} \rightarrow \lim_{x \rightarrow 1} \frac{r(\sqrt{x} - r)}{(\sqrt{x} - r)(\sqrt{x}r + r + r\sqrt{x})} = \frac{r}{1r} = \frac{1}{r}$$