

«مفروضه»

تلفیق ۱۹

کیوان مکان نسب

$$x \rightarrow -2^+ \Rightarrow x > -2 \Rightarrow -x < 2 \Rightarrow 2 - x < 4 \Rightarrow \frac{2-x}{3} < 2$$

$$\rightarrow \left[\frac{2-x}{3} \right] = 1 \Rightarrow 2 + a \left[\frac{2-x}{3} \right] = 2 \quad \textcircled{1}$$

$$x > 2 \Rightarrow x + 2 > 0 \Rightarrow \frac{x+2}{3} > 0 \Rightarrow \left[\frac{x+2}{3} \right] = 0$$

$$x \rightarrow -2^- \Rightarrow x < -2 \Rightarrow -x > 2 \Rightarrow 2 - x > 4 \Rightarrow \frac{2-x}{3} > 2 \Rightarrow \left[\frac{2-x}{3} \right] = 2$$

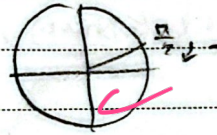
$$x < -2 \Rightarrow x + 2 < 0 \Rightarrow \frac{x+2}{3} < 0 \Rightarrow \left[\frac{x+2}{3} \right] = -1$$

$$\Rightarrow f(x) + a(-1) = 2 - a \quad \textcircled{2} \quad \textcircled{1} = \textcircled{2} \quad 2 = 2 - a \Rightarrow a = 2$$

$$\rightarrow \left[\frac{a}{3} \right] = \left[\frac{2}{3} \right] = 0 \quad \checkmark$$

$$x < \frac{\pi}{2} \Rightarrow \sin x < \frac{1}{2} \Rightarrow 2 \sin x < 1 \Rightarrow 2 \sin x - 1 < 0$$

$$\left[2 \sin x - 1 \right] = -1 \quad \checkmark$$



$$y = 12x^3 - x \Rightarrow \lim_{x \rightarrow \frac{1}{2}} [12x^3 - x] = \lim_{x \rightarrow \frac{1}{2}} \left[12 \left(\frac{1}{2} \right)^3 - \left(\frac{1}{2} \right) \right] \quad \textcircled{2}$$

$$\Rightarrow \lim_{x \rightarrow \frac{1}{2}} \left[12 \left(\frac{1}{2} \right) + \frac{1}{2} \right] = \lim_{x \rightarrow \frac{1}{2}} \left[-\frac{1}{2} \right] = -1 \quad \checkmark$$

$$x < -\frac{1}{2} \Rightarrow 14x < -7 \Rightarrow 14x + 1 < 0 \Rightarrow 0^-$$

$$x < -\frac{1}{2} \Rightarrow x^2 > \frac{1}{4} \Rightarrow \frac{1}{x^2} < 4 \Rightarrow \frac{x}{x^2} < 12 \Rightarrow \left[\frac{x}{x^2} \right] = 11 \quad \textcircled{1} \quad \textcircled{2}$$

$$x < -\frac{1}{2} \Rightarrow x^2 > \frac{1}{4} \Rightarrow \frac{1}{x^2} < 4 \Rightarrow \frac{x}{x^2} < 1 \Rightarrow \frac{-x}{x^2} > -1 \Rightarrow \left[\frac{-x}{x^2} \right] = -11 \quad \textcircled{3}$$

$$\textcircled{1} \textcircled{2} \Rightarrow \lim_{x \rightarrow (-\frac{1}{2})^-} \frac{10x - 0 + 11}{14x - (-1)} = \lim_{x \rightarrow (-\frac{1}{2})^-} \frac{10x + 11}{14x + 1} = \frac{-2 + 11}{-2 + 1} = \frac{9}{-1} = -9 \quad \checkmark$$

$$x \rightarrow 1^+ \Rightarrow [x] = 1 \Rightarrow \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} \quad \textcircled{4}$$

$$\Rightarrow \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \frac{\sin^2 1}{1 + \cos^2 1} = \frac{1}{2} \quad \checkmark$$

$$\Rightarrow \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \frac{\sin^2 1}{1 + \cos^2 1} = \frac{1}{2} \quad \checkmark$$

$$\Rightarrow \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \lim_{x \rightarrow 1^+} \frac{\sin^2 x}{1 + \cos^2 x} = \frac{\sin^2 1}{1 + \cos^2 1} = \frac{1}{2} \quad \checkmark$$

$$x < -\frac{1}{r} \Rightarrow x^r > \frac{1}{\varepsilon} \Rightarrow \frac{1}{x^r} < \varepsilon \quad \hookrightarrow \quad \frac{x}{x^r} < 1 \varepsilon \rightarrow \left[\frac{x}{x^r} \right] = 11$$

$$\hookrightarrow -\frac{r}{x^r} > -1 \rightarrow \left[-\frac{r}{x^r} \right] = -1$$

$$\lim_{x \rightarrow (-\frac{1}{r})^-} \frac{1 \cdot x - 11 + 11}{14x - 1} = \lim_{x \rightarrow (-\frac{1}{r})^-} \frac{1 \cdot x + 4}{0^-} = \frac{1}{0^-} = -\infty$$