

الف) $\lim_{x \rightarrow 1} \frac{2x+7}{x^2+1} = \frac{9}{2} = 4.5$ (ب) $\lim_{x \rightarrow 1} \frac{2x+7}{x^2+1} = \frac{9}{2} = 4.5$ (ج) $\lim_{x \rightarrow 1} \frac{2x+7}{x^2+1} = \frac{9}{2} = 4.5$

ب) $\lim_{x \rightarrow 0} \frac{2x+7}{x^2} = \frac{7}{0^+} = +\infty$ (د) $\lim_{x \rightarrow 0} \frac{2x+7}{x^2} = \frac{7}{0^+} = +\infty$

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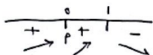
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$$\text{a)} \lim_{x \rightarrow 1} [\varepsilon x^r - \eta x^r + \eta] \xrightarrow{x \rightarrow 1^+} \eta \quad \xrightarrow{x \rightarrow 1^-} \eta$$

$$\text{a)} \cdot 1 \cdot x^r - 1 \cdot x^r = 1 \cdot (x^r) (1 - 2)$$



$$\text{b)} \lim_{x \rightarrow 0} [\varepsilon x^r - \eta x^r + \eta] \xrightarrow{x \rightarrow 0^+} \eta \quad \xrightarrow{x \rightarrow 0^-} \eta$$

$$\varepsilon - \eta + \eta$$



8

$$\text{a)} \lim_{x \rightarrow r} \frac{|x^r - 1|}{x^r - \varepsilon} = \frac{|x - r| (x^r + \eta x + \varepsilon)}{(x - r)(1 + r)} \xrightarrow{x \rightarrow r^+} \frac{r^r + r + \varepsilon}{1 + r} = \left(\frac{r^r}{1 + r} \right)$$

$$\xrightarrow{x \rightarrow r^-} \frac{-1(r^r)}{1 + r} = -r$$

$$\text{b)} \lim_{x \rightarrow \pi} \frac{|\sin x|}{\sin x} = \frac{|\sin x|}{r \sin x \cos x} \xrightarrow{x \rightarrow \pi^+} \frac{-1}{r \cos \pi} = \left(-\frac{1}{r} \right) \quad \xrightarrow{x \rightarrow \pi^-} \frac{+1}{r \cos \pi} = \left(-\frac{1}{r} \right)$$



Y

$$\text{a)} \lim_{x \rightarrow \frac{\pi}{2}} \sqrt{\cos x} \xrightarrow{x \rightarrow \frac{\pi}{2}^+} 0 \quad \xrightarrow{x \rightarrow \frac{\pi}{2}^-} \infty$$



$$\text{b)} \lim_{x \rightarrow \sqrt{x - \sqrt{x}}} \sqrt{x - \sqrt{x}} \xrightarrow{x \rightarrow 0^+} 0 \quad \xrightarrow{x \rightarrow 0^-} 0$$

Λ

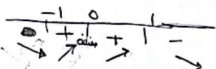
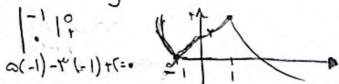
$$\text{a)} \frac{(-1)^0}{x^r(x-1)} = \frac{1}{x^r(x-1)} \xrightarrow{x \rightarrow 0^-} \frac{1}{0^-} = -\infty$$



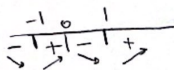
$$\text{b)} \lim_{x \rightarrow r} \frac{x^r - [x^r]}{x - [x]} \xrightarrow{x \rightarrow r^+} \frac{x^r - \varepsilon}{x - r} = x + r = \varepsilon \quad \xrightarrow{x \rightarrow r^-} \frac{x^r - \eta}{x - 1} = 1$$

9

$$\text{a)} y' = 12x^r - 12x^2 = 12x^r(1 - x^r)$$



$$\text{b)} y = \varepsilon x^r - \eta x = \varepsilon x(x^r - 1)$$



10