

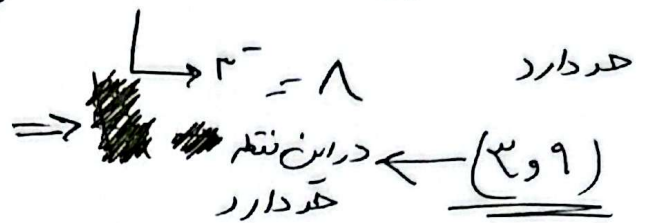
$$\lim_{x \rightarrow 2} [x^2 - 4x] \rightarrow x^+ \rightarrow 0$$

$$\lim_{x \rightarrow 2} [x^2 - 4x] \rightarrow x^- \rightarrow -1$$

$$\lim_{x \rightarrow 2} [4x - x^2] \rightarrow x^+ = A$$

$$\lim_{x \rightarrow 2} [4x - x^2] \rightarrow x^- = A$$

(9)



$$\lim_{x \rightarrow 2} \frac{|x-2|}{x^2 - 3x + 2} \rightarrow x^+ \rightarrow \frac{(x-2)}{(x-2)(x-1)} = 1$$

$$\lim_{x \rightarrow 2} \frac{|x-2|}{x^2 - 3x + 2} \rightarrow x^- \rightarrow \frac{(2-x)}{(x-2)(x-1)} = -1$$

خرد ندارد

(10)

$$\lim_{x \rightarrow 1} \frac{x - [x]}{x^2 - 1} = \begin{cases} \rightarrow 1^+ \rightarrow \frac{x-x}{(x-1)(x+1)} = \frac{1}{2} \\ \rightarrow 1^- \rightarrow \frac{x}{(x-1)(x+1)} \end{cases}$$

$$\lim_{x \rightarrow r^+} f(x) - r = f(r) - r = \underline{\underline{a}}$$

$$\lim_{x \rightarrow r^-} f(x) - r = f(r) - r = \underline{\underline{a}} \quad (1)$$

$$\lim_{x \rightarrow r^+} f[x] - r \rightarrow f(r) - r = \underline{\underline{a}}$$

$a > r \rightarrow [x] = r$

$$\lim_{x \rightarrow r^-} f[x] - r = f(1) - r = \underline{\underline{1}} \quad (2)$$

$x < r \rightarrow [x] = 1$

$$\lim_{x \rightarrow r^+} [f(x) - r] = \underline{\underline{a}}$$

$$\lim_{x \rightarrow r^-} [f(x) - r] = \underline{\underline{a}} \quad (3)$$

$$[r, \dots] = a$$

$$[f(x), \dots] = \underline{\underline{a}}$$

$$[\lim_{x \rightarrow r^+} f(x) - r] = [a] = \underline{\underline{a}}$$

$$[\lim_{x \rightarrow r^-} f(x) - r] = [a] \rightarrow \underline{\underline{a}} \quad (4)$$

$$\lim_{x \rightarrow r} \frac{f(x) - r}{x - r}$$

$r^+ \rightarrow \frac{9}{0^+} = +\infty$
 $r^- \rightarrow \frac{9}{0^-} = -\infty$

فاقد حد است

$$\lim_{x \rightarrow r} \frac{f(x) - r}{(x - r)^2}$$

$r^+ \rightarrow \frac{9}{(0^+)^2} = +\infty$
 $r^- \rightarrow \frac{9}{(0^-)^2} = +\infty$

فاقد حد است

$$\lim_{x \rightarrow r} \frac{f(x) - r}{\sqrt{x - r}}$$

$r^+ \rightarrow \frac{9}{\sqrt{0^+}} = +\infty$ (حد ندارد)
 $r^- \rightarrow \frac{9}{\sqrt{0^-}} = \dots$ (تعریف نشده)

$$\lim_{x \rightarrow r} \frac{f(x) - r}{\sqrt{x^2 - 4x + 3}}$$

$r^+ \rightarrow \frac{9}{\sqrt{0^+}} = +\infty$
 $r^- \rightarrow \frac{9}{\sqrt{0^-}} = \dots$ (تعریف نشده)

$$\lim_{x \rightarrow r} \frac{f(x) - r}{x^2 - 7x + 12}$$

$r^+ \rightarrow \frac{9}{0^+} = +\infty$ (حد ندارد)
 $r^- \rightarrow \frac{9}{0^-} = -\infty$

$$\lim_{x \rightarrow r} \frac{f(x) - r}{[x - r]}$$

$r^+ \rightarrow \frac{9}{[0^+]} = \dots$ (تعریف نشده)
 $r^- \rightarrow \frac{9}{[0^-]} = -9$ (حد ندارد)

$$\lim_{x \rightarrow r} [rx] + [-rx] \rightarrow r^+ \rightarrow 9 + (-9) = \underline{\underline{0}}$$

$r^- \rightarrow 8 + (-8) = \underline{\underline{0}}$

حد دارد $\rightarrow (0, 0)$ (1)

$$\lim_{x \rightarrow -9} [-fx] + [rx] \rightarrow -9^+ \rightarrow 23 - 12 = 11$$

$-9^- \rightarrow 14 - 13 = 1$

حد دارد $\rightarrow (11, 1)$