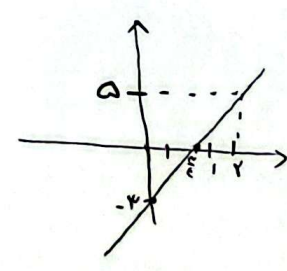


<p>الف) $\lim_{x \rightarrow 2^+} f_{x-2} = a$</p> <p>ب) $\lim_{x \rightarrow 2^-} f_{x-2} = a$</p>	<p>۱</p>
<p>الف) $\lim_{x \rightarrow 2^+} f[x] - 2 = 1 - 2 = a$</p> <p>$x > 2 \Rightarrow [x] = 2$</p> <p>ب) $\lim_{x \rightarrow 2^-} f[x] - 2 = 1 - 2 = a$</p> <p>$x < 2 \Rightarrow [x] = 1$</p>	<p>۲</p>
<p>الف) $\lim_{x \rightarrow 2^+} [f_{x-2}] = a$</p> <p>$x > 2 \Rightarrow f_{x-2} > a \Rightarrow [f_{x-2}] = a$</p> <p>ب) $\lim_{x \rightarrow 2^-} [f_{x-2}] = f$</p> <p>$x < 2 \Rightarrow f_{x-2} < a \Rightarrow [f_{x-2}] = f$</p>	<p>۳</p>
<p>الف) $\left[\lim_{x \rightarrow 2^+} f_{x-2} \right] = a$</p> <p>ب) $\left[\lim_{x \rightarrow 2^-} f_{x-2} \right] = a$</p>	<p>۴</p> 
<p>الف) $\lim_{x \rightarrow 2} \frac{f_{x-2}}{x-2} \rightarrow \begin{cases} x \rightarrow 2^+ \Rightarrow \frac{a}{0^+} = +\infty \\ x \rightarrow 2^- \Rightarrow \frac{a}{0^-} = -\infty \end{cases}$</p> <p>ب) $\lim_{x \rightarrow 2} \frac{f_{x-2}}{(x-2)^2} \rightarrow \begin{cases} x \rightarrow 2^+ \Rightarrow \frac{a}{0^+} = +\infty \\ x \rightarrow 2^- \Rightarrow \frac{a}{0^-} = +\infty \end{cases}$</p>	<p>۵</p>

<p>الف) $\lim_{x \rightarrow 3} \frac{\sqrt{x} - 3}{x - 3}$</p> <p>$\begin{cases} x^+ \Rightarrow \frac{9}{\sqrt{0^+}} = +\infty \\ x^- \Rightarrow \frac{9}{\sqrt{0^-}} = \text{تقریب نشده چون در مخرج صغیر} \end{cases}$</p> <p>$\Rightarrow \lim_{x \rightarrow 3} \frac{\sqrt{x} - 3}{x - 3}$</p> <p>$\begin{cases} x^+ \Rightarrow \frac{9}{\sqrt{0^+}} = +\infty \\ x^- \Rightarrow \frac{9}{\sqrt{0^-}} = \text{تقریب نشده} \end{cases}$</p> <p>$\frac{+}{-}$</p>	<p>حد ندارد</p> <p>6</p> <p>حد ندارد</p>
<p>الف) $\lim_{x \rightarrow 3} \frac{f(x) - 3}{x^2 - \sqrt{x} + 12}$</p> <p>$\begin{cases} x^+ \Rightarrow \frac{9}{0^-} = -\infty \\ x^- \Rightarrow \frac{9}{0^+} = +\infty \end{cases}$</p> <p>$\frac{+}{-}$</p> <p>$\Rightarrow \lim_{x \rightarrow 3} \frac{f(x) - 3}{x - 3} \begin{cases} x^+ \Rightarrow \frac{9}{0^-} = \text{تقریب نشده} \\ x^- \Rightarrow \frac{9}{-1} = -9 \end{cases}$</p>	<p>حد ندارد</p> <p>7</p> <p>حد ندارد</p>
<p>الف) $[x^+] + [-x^-]$</p> <p>$\begin{cases} 9 + (-7) = 2 \\ 1 + (-4) = -3 \end{cases}$</p> <p>$\Rightarrow \lim_{x \rightarrow 3} [-f(x)] + [g(x)] \begin{cases} -4^+ \Rightarrow 2^3 + (-12) = 11 \\ -4^- \Rightarrow 2^3 + (-12) = 11 \end{cases}$</p>	<p>حد دارد</p> <p>8</p> <p>حد دارد</p>
<p>الف) $\lim_{x \rightarrow 2} [x^2 - f(x)]$</p> <p>$\begin{cases} x^+ \rightarrow -f \\ x^- \rightarrow -f \end{cases}$</p> <p>$\Rightarrow \lim_{x \rightarrow 3} [4x - x^2]$</p> <p>$\begin{cases} x^+ \rightarrow 1 \\ x^- \rightarrow 1 \end{cases}$</p>	<p>حد دارد</p> <p>9</p> <p>حد دارد</p>
<p>الف) $\lim_{x \rightarrow 2} \frac{ x - 2 }{x^2 - \frac{1}{2}x + 2}$</p> <p>$\begin{cases} x^+ \rightarrow \frac{x-2}{x^2 - \frac{1}{2}x + 2} = \frac{x-2}{(x-2)(x-1)} = \frac{1}{x-1} = 1 \\ x^- \rightarrow \frac{2-x}{x^2 - \frac{1}{2}x + 2} = \frac{-(x-2)}{(x-2)(x-1)} = \frac{-1}{x-1} = -1 \end{cases}$</p> <p>$\Rightarrow \frac{x - [x]}{x^2 - 1}$</p> <p>$\begin{cases} x^+ \rightarrow \frac{x-1}{x^2-1} = \frac{x-1}{(x-1)(x+1)} = \frac{1}{x+1} = \frac{1}{4} \\ x^- \rightarrow \frac{x-0}{x^2-1} = \frac{x}{x^2-1} = \frac{1}{0^-} = -\infty \end{cases}$</p>	<p>حد ندارد</p> <p>10</p> <p>حد ندارد</p>