

(1) الف) $\lim_{x \rightarrow 2^+} f(x-2) = 1-2 = -1$ ب) $\lim_{x \rightarrow 2^-} f(x-2) = 1-2 = -1$

(2) الف) $\lim_{x \rightarrow 2^+} f[x] - 2 = 1 - 2 = -1$ ب) $\lim_{x \rightarrow 2^-} f[x] - 2 = f - 2 = 1$

(3) الف) $\lim_{x \rightarrow 2^+} [f(x-2)] = -1$ ب) $\lim_{x \rightarrow 2^-} [f(x-2)] = 1$

(4) الف) $\left[\lim_{x \rightarrow 2^+} f(x-2) \right] = -1$ ب) $\left[\lim_{x \rightarrow 2^-} f(x-2) \right] = 1$

(5) الف) $\lim_{x \rightarrow 2} \frac{f(x-2)}{x-2} = \lim_{x \rightarrow 2} \frac{9}{0^+} = +\infty$ ب) $\lim_{x \rightarrow 2} \frac{f(x-2)}{(x-2)^2} = \frac{9}{0^+} = +\infty$

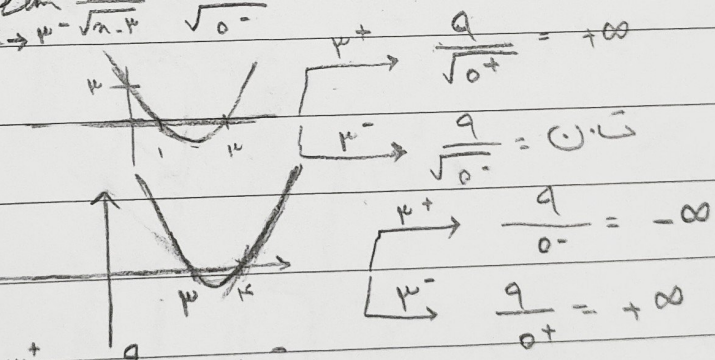
$\lim_{x \rightarrow 2^-} \frac{9}{0^-} = -\infty$

بجمله توان بود لکن به صورت کسری نیست در مجموع مثبت است.

(6) الف) $\lim_{x \rightarrow 2^+} \frac{f(x-2)}{\sqrt{x-2}} = \frac{9}{\sqrt{0^+}} = +\infty$

$\lim_{x \rightarrow 2^-} \frac{f(x-2)}{\sqrt{x-2}} = \frac{9}{\sqrt{0^-}} = \text{undefined}$

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



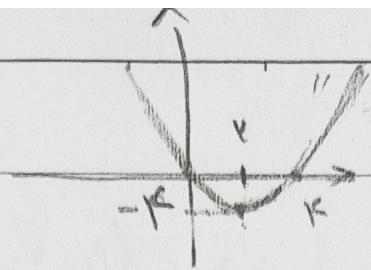
(7) الف) $\lim_{x \rightarrow 2^+} \frac{9}{\sqrt{0^+}} = +\infty$
 $\lim_{x \rightarrow 2^-} \frac{9}{\sqrt{0^-}} = \text{undefined}$
 $\lim_{x \rightarrow 2^+} \frac{9}{0^-} = -\infty$
 $\lim_{x \rightarrow 2^-} \frac{9}{0^+} = +\infty$

(8) ب) $\lim_{x \rightarrow 2} \frac{f(x-2)}{[x-2]}$
 $\lim_{x \rightarrow 2^+} \frac{9}{[0^+]} = 9$
 $\lim_{x \rightarrow 2^-} \frac{9}{[0^-]} = -9$

(9) الف) $\lim_{x \rightarrow 2} [f(x)] + [-f(x)]$
 $\lim_{x \rightarrow 2^+} 9 - 9 = 0$
 $\lim_{x \rightarrow 2^-} 1 - 1 = 0$

ب) $\lim_{x \rightarrow -4} [-f(x)] + [f(x)]$
 $\lim_{x \rightarrow -4^+} -9 + 9 = 0$
 $\lim_{x \rightarrow -4^-} 11 - 11 = 0$

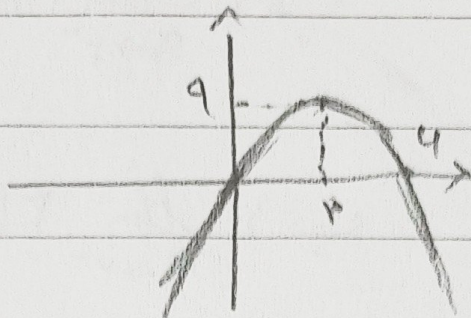
الف) $\lim_{n \rightarrow r} \frac{n^2 - r^2}{n(n-r)}$



$\lim_{n \rightarrow r} [n^2 - r^2] = -r^2$

Ⓐ

ب) $\lim_{n \rightarrow 4} \frac{4n - n^2}{n(4-n)}$



$\lim_{n \rightarrow 4} [4n - n^2] = 0$

الف) $\lim_{n \rightarrow 2} \frac{|n-2|}{n^2 - 1}$ = $\frac{0}{0}$ = $\frac{0}{0}$

$\frac{|n-2|}{(n-1)(n-2)}$

$\xrightarrow{2^+} \frac{1}{n-1} = 1$

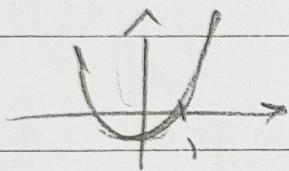
$\xrightarrow{2^-} \frac{-1}{n-1} = -1$

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ب) $\lim_{n \rightarrow 1} \frac{n - [n]}{n^2 - 1}$ = $\frac{0}{0}$ = $\frac{0}{0}$

$\xrightarrow{1^+} \frac{n-1}{(n-1)(n+1)} = \frac{1}{n+1} = \frac{1}{2}$

$\xrightarrow{1^-} \frac{n}{n^2-1} = \frac{1}{0^-} = -\infty$



10