

1) $\lim_{x \rightarrow p^+} \epsilon x - p = \epsilon(p) - p = 0$ $\lim_{x \rightarrow p^-} \epsilon x - p = \epsilon(p) - p = 0$

2) $\lim_{x \rightarrow p^+} \epsilon [x^2] - p = \epsilon [p^2] - p \rightarrow \epsilon [p^2] - p = \eta - p = 0$

3) $\lim_{x \rightarrow p} \epsilon [x] - p = \epsilon [p] - p = \epsilon [19] - p = 1$

4) $\lim_{x \rightarrow p^+} \epsilon [x - p] = \epsilon [p - p] = \epsilon [0, p] = 0$

5) $\lim_{x \rightarrow p^-} \epsilon [x - p] = \epsilon [p - p] = \epsilon [0, p] = 0$

6) $\lim_{x \rightarrow p^+} \epsilon [x - p] = \lim_{x \rightarrow p^+} \epsilon x - p = 0 \Rightarrow [0] = 0$

7) $\lim_{x \rightarrow p^-} \epsilon [x - p] = \lim_{x \rightarrow p^-} \epsilon x - p = 0 \Rightarrow [0] = 0$

8) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{x - p} = \frac{12 - p}{p - p} = \frac{9}{0^+} = +\infty$

9) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{(x - p)^2} = \frac{12 - p}{0^+} = \frac{9}{0^+} = +\infty$

10) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{(x - p)^2} = \frac{12 - p}{0^-} = \frac{9}{0^-} = -\infty$

11) $\lim_{x \rightarrow p} \frac{p^+}{\sqrt{0^+}} = \frac{9}{\sqrt{0^+}} = +\infty$

12) $\lim_{x \rightarrow p} \frac{p^-}{\sqrt{0^-}} = \frac{9}{\sqrt{0^-}} = -\infty$

13) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{\sqrt{x^2 - \epsilon x + p}} = \frac{\epsilon x - p}{\sqrt{(x - p)(x + p)}} = \frac{9}{\sqrt{0^+} \cdot 1} = +\infty$

14) $\lim_{x \rightarrow p} \frac{p^+}{\sqrt{0^+}} = \frac{9}{\sqrt{0^+}} = +\infty$

15) $\lim_{x \rightarrow p} \frac{p^-}{\sqrt{0^-}} = \frac{9}{\sqrt{0^-}} = -\infty$

16) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{x^2 - \epsilon x + p} = \frac{\epsilon x - p}{(x - p)(x + p)} = \frac{9}{0^+ \cdot 1} = +\infty$

17) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{x - p} = \frac{9}{0^+} = \frac{9}{0} = +\infty$

18) $\lim_{x \rightarrow p} \frac{\epsilon x - p}{x - p} = \frac{9}{0^-} = -\frac{9}{0} = -\infty$

1) $\lim_{x \rightarrow \infty} [x^p] + [-x^p] \Rightarrow \lim_{x \rightarrow \infty} [x^p - x^p] = 0$

$\lim_{x \rightarrow \infty} [x^p] + [-x^p] = 1 - 1 = 0$

$\lim_{x \rightarrow -\infty} [-x^p] + [x^p] = 1 - 1 = 0$

9) $\lim_{x \rightarrow r} [x^r - \epsilon x] \Rightarrow x^r - \frac{\epsilon}{2} < r \Rightarrow -\epsilon$

$\lim_{x \rightarrow r} [-x^r + \epsilon x] \Rightarrow x^r - \frac{\epsilon}{2} < -r \Rightarrow \epsilon$

10) $\lim_{x \rightarrow r} \frac{|x-r|}{x^r - r^r} \Rightarrow \frac{r^r - x^{-r}}{(x-r)(r-1)} = \frac{1}{r-1} \Rightarrow 1$

$\lim_{x \rightarrow 1} \frac{x - [x]}{x^{r-1}} \Rightarrow \frac{x-1}{(x-1)(x+1)} = \frac{1}{x+1} \Rightarrow \frac{1}{2}$