



1.	Let $a$ be an integer such that $\lim_{x\to 7}\frac{18-[1-x]}{[x-3a]}$ exists, where $[t]$ is greatest integers	er < t Then $a$ is eq	// mathongo						
	$\frac{1}{x \to 7} = \frac{1}{[x-3a]} = \frac{1}{$	(2) 6	quai to						
	(3) at 6 ngo /// mathongo /// mathongo /// mathongo								
2.	Let $[t]$ denote the greatest integer $\leq t$ and $\{t\}$ denote the fractional part of $t$								
	$f(x) - [1 + x] + \frac{\alpha^{2[x] + \{x\} + [x] - 1}}{\alpha^{2[x] + \{x\} + [x] - 1}}$ at $x = 0$ is equal to $\alpha = \frac{4}{3}$ is								
3.	If $\lim_{n\to\infty} \left(\sqrt{n^2-n-1}+n\alpha+\beta\right)=0$ then $8(\alpha+\beta)$ is equal to								
	$\lim_{n\to\infty} (\sqrt{n} + \sqrt{n} + \sqrt{n}) = 0 \text{ and } 0(n+p) \text{ is equal to}$ (1) 4	(2) -8							
	(3) 14 ngo /// mathongo /// mathongo /// mathongo	/(4) r8 athongo							
4.	Let $f(x)$ be a polynomial function such that $f(x)+f^{\prime\prime}(x)+f^{\prime\prime}(x)=x^5+64$	. Then, the value of	$f \lim_{x \to 1} \frac{f(x)}{x}$ is equal to	)					
	(1) 15		$x \rightarrow 1$ $x \rightarrow $						
	(3) -60 mathongo mathongo mathongo	(4) 60							
5.	The value of $\lim_{n\to\infty} \frac{1+2-3+4+5-6+\ldots+(3n-2)+(3n-1)-3n}{\sqrt{2n^4+4n+3}-\sqrt{n^4+5n+4}}$ is								
		(2) $3(\sqrt{2}+1)$							
	(3) $\frac{3}{2}(\sqrt{2}+1)$	$(4) \frac{3}{2\sqrt{2}}$							
11.	$\lim_{x \to 0} \frac{\cos(\sin x) - \cos x}{x^4} \text{ is equal to} $ mathongo mathongo	2 V 2							
0.	$x \to 0$ $x^4$ is equal to	1							
	(1) $\frac{1}{3}$ (3) $\frac{1}{4}$ rongo /// mathongo /// mathongo /// mathongo	$(2) \frac{1}{6}$ $(4) \frac{1}{1}$							
7.		12 11101190							
	$\lim_{x \to \frac{\pi}{4}} \frac{8\sqrt{2} - (\cos x + \sin x)^{7}}{\sqrt{2} - \sqrt{2}\sin 2x}$ is equal to								
	(1)_14ongo /// mathongo /// mathongo /// mathongo	_							
0	$\begin{array}{ccc} (3) & 14\sqrt{2} \\ & & \\ $	(4) $7\sqrt{2}$							
8. /4.	$\lim_{x \to 0} \frac{x + 2\sin x}{\sqrt{x^2 + 2\sin x + 1} - \sqrt{\sin^2 x - x + 1}} $ is	//_ mathongo							
	(1) 3 (3) 2	(2) 1 (4) 6							
9	$(3) 2 \left( \sqrt{3} \sin\left(\frac{\pi}{2} + h\right) - \cos\left(\frac{\pi}{2} + h\right) \right)$	(4) 0							
17.	The value of $\lim_{h\to 0} \left\{ \frac{\sqrt{3}\sin\left(\frac{\pi}{6}+h\right)-\cos\left(\frac{\pi}{6}+h\right)}{\sqrt{3}h\left(\sqrt{3}\cos h-\sin h\right)} \right\}$ is:								
	(1) $\frac{4}{3}$								
	$(3)^{-\frac{2}{3}}$ ongo /// mathongo /// mathongo /// mathongo	$(4)^{\frac{\sqrt{3}}{4}}$ athongo							
10.	Let $f, g$ and $h$ be the real valued functions defined on $\mathbb{R}$ as $f(x) = \begin{cases} \frac{x}{ x }, & x \\ 1, & x \end{cases}$ integer $\leq x$ . Then the value of $\lim_{x \to \infty} g(h(x-1))$ is	$x \neq 0$ $\int \frac{s}{x}$	$\frac{\sin{(x+1)}}{(x+1)},  x \neq -1$	11(.)	o[] . (/	\ 1	full: a		
	Let $f, g$ and $h$ be the real valued functions defined on $\mathbb{R}$ as $f(x) = \begin{cases} 1, & \text{and } 1 \\ 1, & \text{and } 1 \end{cases}$	x = 0, $g(x) =$	x = -1	id $n(x)$ =	athongo	), wne	[x] is the graph $[x]$	reatesi	n
	integer $\leq x$ . Then the value of $\lim_{x \to 1} g(h(x-1))$ is								
	(1) 1	$(2) \sin(1)$							
///.	(3) 11 ngo /// mathongo /// mathongo /// mathongo								
11.	If $\lim_{x\to 0} \left\{ \frac{1}{x^8} \left( 1 - \cos\frac{x^2}{2} - \cos\frac{x^2}{4} + \cos\frac{x^2}{2} \cos\frac{x^2}{4} \right) \right\} = 2^{-k}$ then the value of $1$	k is							
12.	For each $t \in R$ , let $[t]$ be the greatest integer less than or equal to $t$ . Then, $\frac{1}{x}$	$\lim \frac{(1- x +\sin 1-x )}{1+\sin x-x }$	$\frac{1}{(1-x)^{\frac{\pi}{2}}}$						
	(1) equals 0	$\rightarrow 1^+$ $(2)$ equals $-1$	$\lfloor 1-x \rfloor$						
	(3) does not exist mathongo /// mathongo /// mathongo	· / I							
13.	If $\lim_{x\to 0} \frac{ax-(e^{4x}-1)}{ax(e^{4x}-1)}$ exists and is equal to $b$ , then the value of $a-2b$ is								
14	$x \to 0$ $ax(e^{ix}-1)$ $(\frac{x+2}{2})$								
*7.	If the value of $\lim_{x \to 0} \left(2 - \cos x \sqrt{\cos 2x}\right)^{\left(\frac{x+2}{x^2}\right)}$ is equal to $e^a$ , then $a$ is equal								
15.	Let $f: R \to R$ be a differentiable function satisfying $f'(3) + f'(2) = 0$ . The function satisfying $f'(3) + f'(2) = 0$ . The function satisfying $f'(3) + f'(2) = 0$ .	en $\lim_{x \to \infty} \left( \frac{1+f(3+x)-f(3+x)-f(3+x)}{1+f(3+x)-f(3+x)} \right)$	$\left(\frac{3}{2}\right)^{\frac{1}{x}}$ is equal to						
	mathongo /// mathongo /// mathongo /// mathongo	$x \to 0 \ (1+f(2-x)-f)$ (2) e	mathongo						
	(3) $e^2$	(4) $e^{-1}$							
16.	$\lim_{x\to 0} \left( \frac{(x+2\cos x)^3 + 2(x+2\cos x)^2 + 3\sin(x+2\cos x)}{(x+2)^3 + 2(x+2)^2 + 3\sin(x+2)} \right)^{\frac{100}{x}}$ is equal to								
	$\lim_{x\to 0} \left( \frac{(x+2)^3 + 2(x+2)^2 + 3\sin(x+2)}{} \right) $ is equal to								



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17. If $\lim_{x\to 0} \frac{\alpha e^x + \beta e^{-x} + \gamma \sin x}{x \sin^2 x} = \frac{2}{3}$ , where $\alpha$	$\alpha, \beta, \gamma \in R$ , then which of the following is NOT correct?			
$(1) \ \alpha^2 + \beta^2 + \gamma^2 = 6$	(2) $\alpha\beta + \beta\gamma + \gamma\alpha + 1 = 0$			
(2) (2) (3) (3)	(4) 2 02 . 2			

$$(3) \quad \alpha\beta^2 + \beta\gamma^2 + \gamma\alpha^2 + 3 = 0$$

$$(4) \quad \alpha^2 - \beta^2 + \gamma^2 = 4$$

$$18. \quad \text{If } \lim_{x \to 0} \left[ \frac{\alpha x e^x - \beta \log_e(1+x) + \gamma x^2 e^{-x}}{x \sin^2 x} \right] = 10, \ \alpha, \ \beta, \ \gamma \in R, \text{ then the value of } \alpha + \beta + \gamma \text{ is } \underline{\hspace{2cm}}.$$

19. 
$$\lim_{n \to \infty} \left\{ \left( 2^{\frac{1}{2}} - 2^{\frac{1}{3}} \right) \left( 2^{\frac{1}{2}} - 2^{\frac{1}{5}} \right) \dots \left( 2^{\frac{1}{2}} - 2^{\frac{1}{2n+1}} \right) \right\}$$
 is equal to mathongo /// mathongo // mathongo

$$\lim_{n\to\infty}\left\{\binom{2^2-2^3}{2^2-2^5}\dots\binom{2^2-2^{2n+1}}{2^n-2^5}\right\}$$
 is equal to mathongo /// mathongo // mathongo //

(3) 
$$\sqrt{2}$$
 (4)  $\frac{1}{\sqrt{2}}$  mathons m

<b>20.</b> The value of $\lim_{n\to\infty} \frac{\lfloor r\rfloor + \lfloor 2r\rfloor + \ldots + \lfloor nr\rfloor}{n^2}$	, where $r$ is non-zero real number and $[r]$ denotes the greatest integer less than or equal to $r$ , is equal to :	
(1) $\frac{r}{2}$	(2) $r$	

(3) 2rongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo