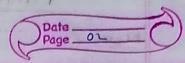
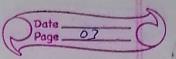
Limits and Derivatives Date 01/06/27 New Ch Limit : 100 Part - 100 1 2011 [Color 1011] mil We say limit x > a. F(x) is the experted value of F at n = a given the value of F one are x to the left of a. This value is called the deft hand limit of FGO. at a This we say limit no at F(w) is the expected value of Fat n = a given the value of F near x to the right of a. This value is called the right hand limit of F(n) at a. If the right hand, left hand limit are equal to each other then the limit exists. We called at common value as the limit of F(n) at n a, and it is denoted by lim fin). Algebra of limits. Let f and g be two functions such that both limiten and ling(n)

exists then

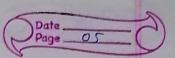


1)	lim [FIN) + s(n)] = dim F(n) + lim g(n)
1)	lim [F(N) +g(N)] = lim F(N) + lim g(N) N+a N+a N+a
	con oca trail upp out
<u>(ii)</u>	lim [F(m)-g(m)] = lim F(n) - lim g(n) n+a
	$n \rightarrow a$ $n \rightarrow a$ $n \rightarrow a$
	macas x in the left of a
iii	$\lim_{n \to a} \left[F(x) \cdot g(n) \right] = \lim_{n \to a} F(n) \cdot \lim_{n \to a} (n)$
.)	$1. f(x) \rightarrow 1: -F(x)$
(i)	$\lim_{n \to a} \left[\frac{f(n)}{g(n)} \right] = \lim_{n \to a} f(n)$
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	ic to (x)) to timil bond limit of ((x) ad a.
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	to MER are find limit f(n).
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	then check the lim.
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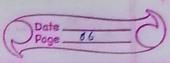


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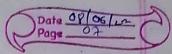
DEC A For any positive integer in lim n - a = n a n - 1 n + a m - a 1 - m =) m then Limit of Irigonometric functions A lim a Sinx =1 1 N 7 1 1 H 1 $\lim_{n\to 0} \frac{1-\cos n}{n} = 0.$ (11) 2 lim x"-1 x+1 x"-1 lim x15-1 = x10-1 n15-1 = lim n10-1 = 15.(1) 15-1 ÷ (10).(1) 10-L = 18 ÷ 10 = 15 = 3



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Q.	Evaluate lim Sin 4n.	
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*	lim Sin 4n	
	lim Sin 4n n+0 Sin 2n	
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	4 lim 1 sin 4n 2n 2 n + 0 4n sin 2n	
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	12 lim Sin An + Sin 2x n+0 an 2n.	
	m+0 an 2n.	
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	+2 lim Sin 4n = lim Sin 2n	
	[n+0 4n 2n]	
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	+2.(1 ÷ 1.) + 2. Ans	
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1,	Jim n+3 7) 3+3 = 6 Am	
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4	$\lim_{n \to 2} 3n^2 - n - 10 = 3.4 - 2 - 10 = 0 = 0$ $1 + 2 = 2 - 4$	D
	N+2 72-4.	
	Now, lim 3n2 - 6n + 5n - 10 n+2 (n+2) (n-2)	
	(NFL) (NFL)	
	$\Rightarrow \lim_{n \to \infty} 3n(n-2) + 5(n-2)$	
	$n \rightarrow 2$ $(n+2)(n-2)$	
	M.S. M.S. M.S. M.S. M.S. M.S. M.S. M.S.	
	$\frac{7}{100} \frac{(n-2)(3n+5)}{(n+2)(n-2)} = \frac{11}{4} \frac{4}{100}$	
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(8)	1 lim 2 - 31 2 2 - 3 - 5 n - 3	
	$n+3$ $2n^3-5n-3$	
	$\frac{1}{2} \lim_{n \to 3} \frac{(n^2)^2 - 9^2}{2n^2 - 6n + n - 3}$	
	$n+3 2n^2-6n+n-3$	
	2 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
	$\frac{3) \lim_{n \to 3} (n^2 + 9) (n^2 - 9)}{2n(n-3) + 1(n-3)}$	•
	1 (123)	
	$\frac{1}{3}$ $\lim_{n \to 3} (n^2 + 9) (n^2 - 3^2)$	
	m+3 $(2m+1)$	
	4 $\lim_{n \to 3} (n^2 + 9) (n + 3) (n - 3)$	
	m+3 (2×+1)	
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