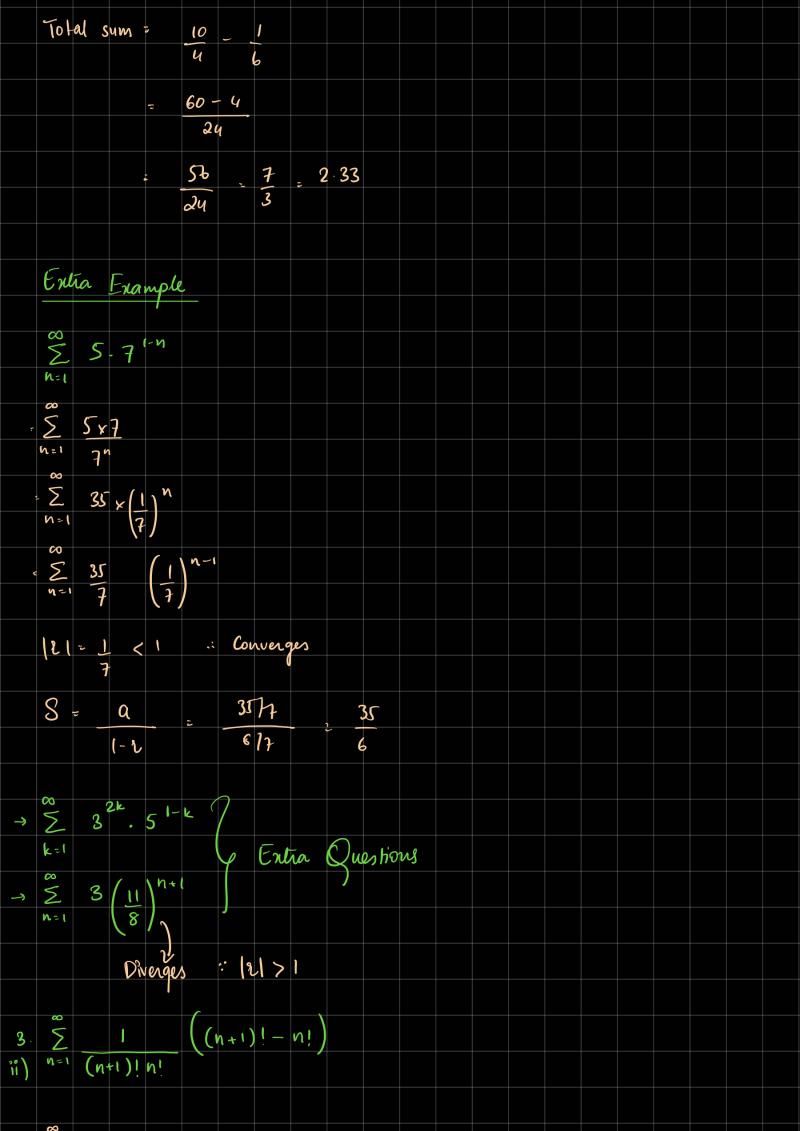
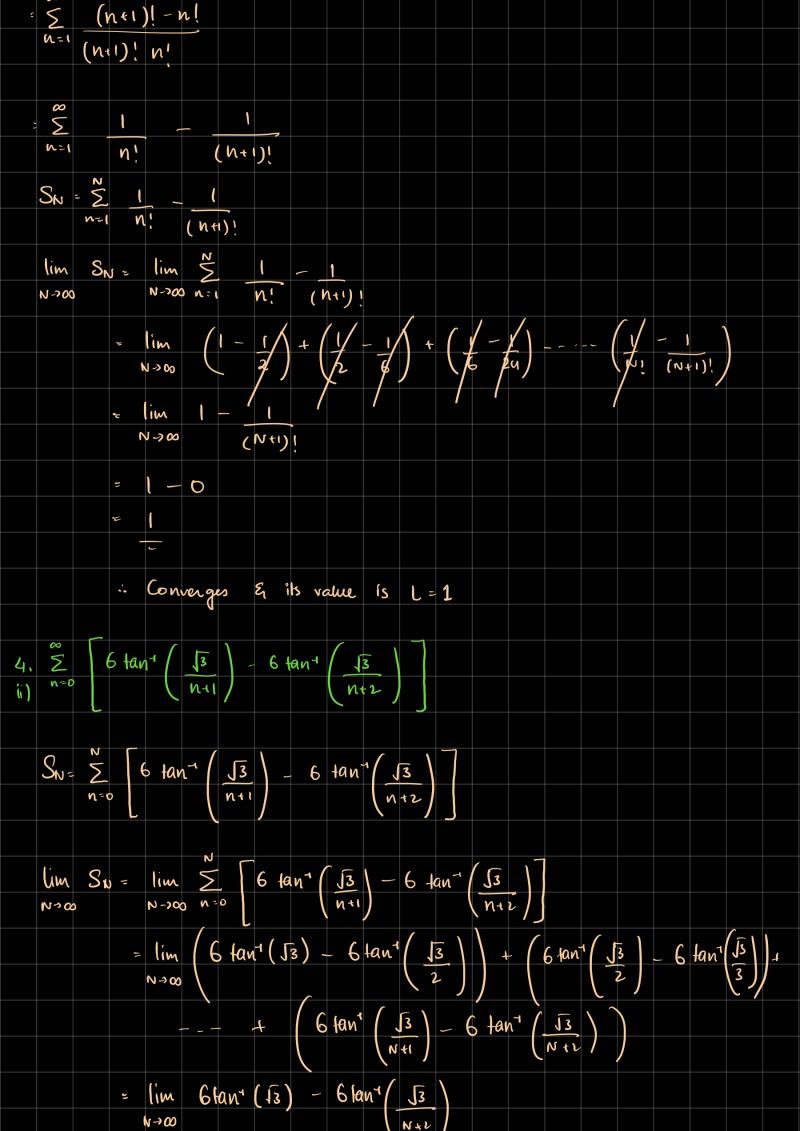
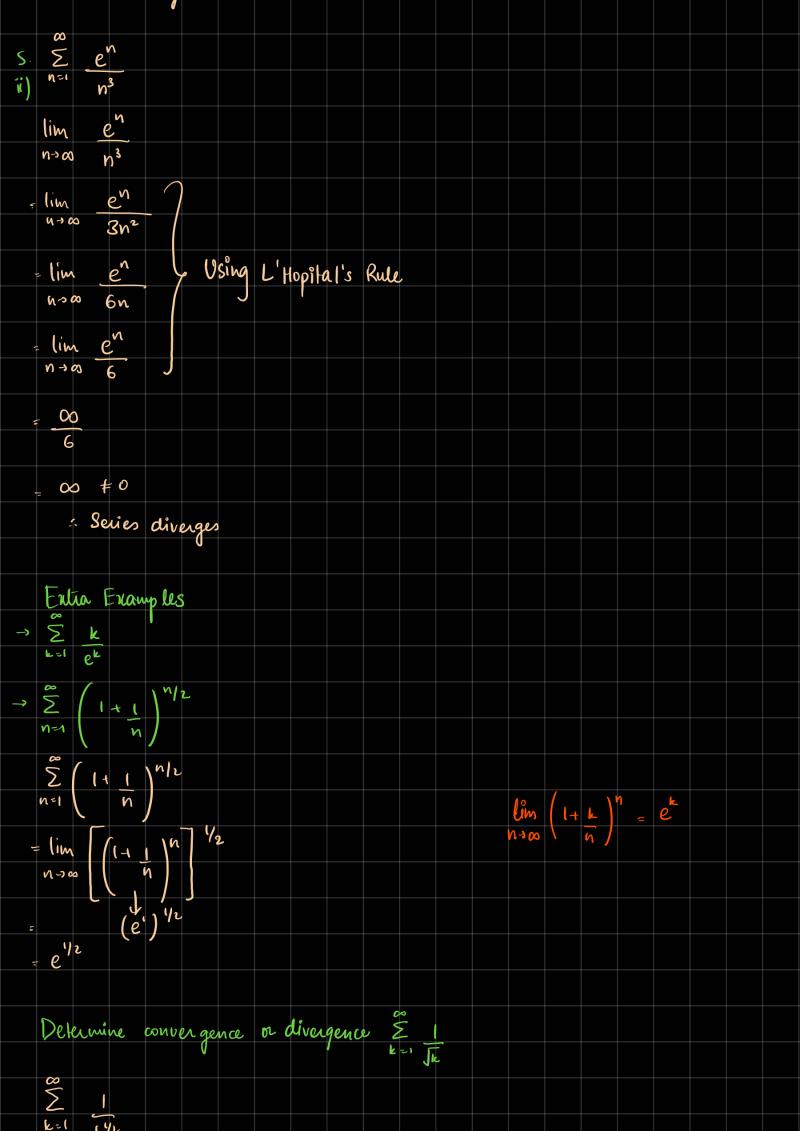
3. \(\sum_{1}^{\infty} \) 4" 5" "	Tutorial 7
$= \sum_{n=1}^{\infty} \frac{4^n \cdot 5}{5^n}$	
$=\frac{\infty}{2}$ 5 (4)	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
= \(\sum_{\infty} \) \(\left(4 \) \) \(\left(1 + 1 \) \)	
$n = 1$ $\left(\frac{5}{5} \right)$	
$\sum_{n=1}^{\infty} 4 \left(\frac{4}{5}\right)^{n-1}$	
121 = 4 < 1 : Converges	
12/2 4 < 1 : Converges	
Sum = a, 4 4 20	
1-2 1-415 75	
4. $\sum_{i}^{\infty} \left[(-0.2)^n + (0.6)^{n-1} \right]$	
\(\sum_{n=1}^{20} \left(-0.2 \right)^n \)	
181 = 0.2 < 1 1. converges	
$0 = -0.2$ $S_{14m} = -0.2$ -0.2	
$Sum = \frac{-0.2}{1 - (-0.2)} = \frac{-0.2}{1.2} = \frac{-710}{1210} = \frac{-1}{6}$	
\(\sum_{n=1}^{\infty} \left(0.6 \) \(\sum_{n=1}^{n-1} \)	
\{ \ \ \ = 0.6 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
$ \mathcal{E} = 0.6 < 1$ in converges $a = 1$	
Sum = 4 1 10 4	





$= 6 \tan^{-1}(\bar{J}_3) - 6 \tan^{-1}(0)$	
$\frac{1}{3}$ $\frac{1}$	
4 211	
Extra Example	
	$\sum_{k=0}^{\infty} \ln \left(\frac{k}{k} \right)$
Find the sum of the series \sum 1 k ² +7k+12	k=1 (k+1)
E A + B k=1 k+3 k+4	
1 = A(k+4) + B(k+3)	
@ k = -4	
B=-1 A=1	
$\sum_{i=1}^{\infty} \left[$	
k=1 k+3 k+4	
5. \(\sum_{3} \) - 8n i) n=1 \(\frac{n+y}{n+y} \)	
5. \(\sum \) \(\sum \) \(\sum \) \(\text{n} \tau \) \(n	
1 im 3 -8n n-14	
= lim 1 -8v	
n-200 3 / / (144/n)	
- lim 1 - 8	
n-200 3 1-1 4/n	
_ 8	
3 (+0	
3 -8	
-2 +0	
· Series diverges	



$P = \frac{1}{2} < 1$	
: Diverges	
	Afternating Sevies Test
6. \(\sum_{\infty} \) (-1) \(\cdot \) \(\lambda \)	Jewes jest
i) n=2 nln(n)	G_{1} G_{2} G_{3} G_{4} G_{5} G_{5} G_{4} G_{5} G_{5
	General $\sum_{n=1}^{\infty} (-1)^n$ an
$\frac{1}{3 \ln 3} < \frac{1}{2 \ln 2}$	
	Conditions
- an is decreasing	→ ant (< an (decreasing)
	$\Rightarrow \lim_{n\to\infty} \alpha_n = 0$
lim 1	
n→∞ nlnn	I two conditions are satisfied
	then convergent. Otherwise
∞ n ∞	diverges.
= 0	
: Both conditions are met	
$\therefore \sum_{n=2}^{\infty} (-1)^n \qquad 1 \qquad \text{is converging}$	
n=2 n ln(n)	
(by alternating series test)	
6. 2 1	
$\frac{2}{11} = \frac{2}{n \ln(n)}$	
$\frac{1}{n \ln(n)} = \int_{0}^{\infty} (n) \text{where } \int_{0}^{\infty} (n) = \frac{1}{n \ln n}$	
f(n) is decreasing, positive and continuous	
<u> </u>	
J dr	
2 7 11 2	
lim (dx	
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	En	tia	Exa	mpl	<u>e</u>										
	00		2												
->	∞ ∑ N=1	ne"													
->															
	2 n=1	In n	n 2												