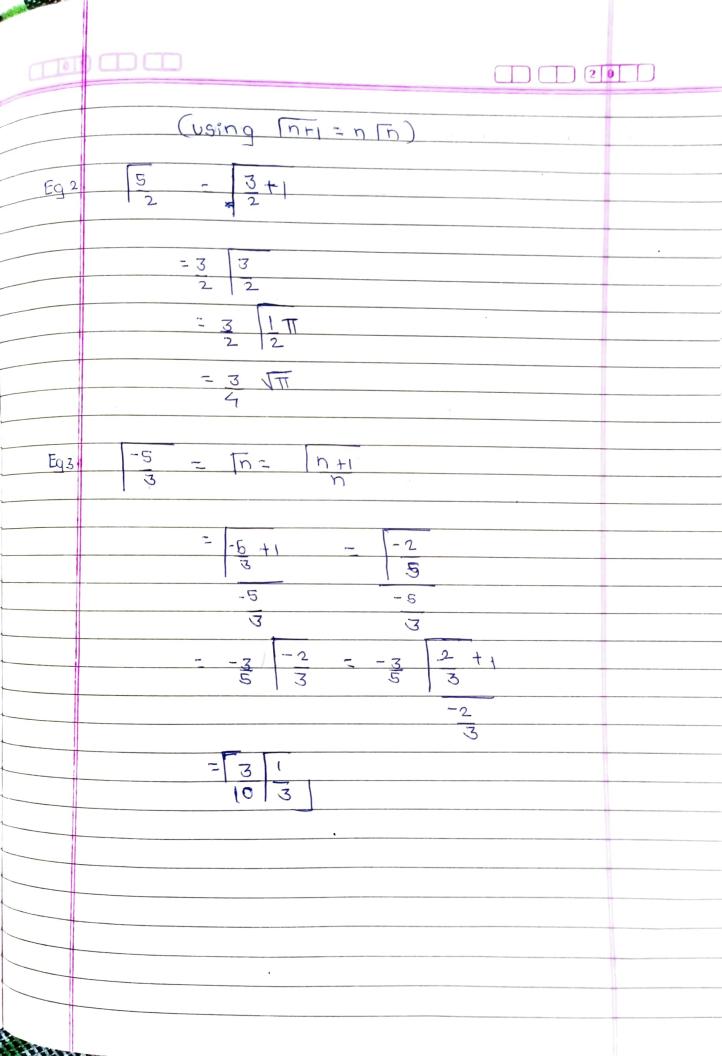
J. Integral Calculas GAMMA FUNCTION (T): In Se-xxn-1 dx, n>0 It is denoted by In and is defend as Th = Je-xxn-1 dx, n70 Properties of Gamma Functions: 1) The Alternate form of gamma function is; [n=2 [e-x2 x2n-1 dx 2) [= 1; = Se-x xodn = se-ndn = [-e-x]0 = -[eo-eo] - - CO - 1] 3) 10=00 $\frac{1}{2} = \sqrt{11}$ 5) nti = nIn

HILL 20 .. replace n by n+) = Se-rxn.dx = (xne-ydx ... By using U. V. Rwe. = (-xne-x)00 + Sxn-e-xdx = (0-0) + n [xn-1ex dx - nm, +n Inti =n! if n is the integer 6) - n (n-1) [n-1 = n (n-1) (n-2) [n-2 = n(n-1)(n-2) (n-3) [n-3 = n(n-1) (n-2) (n-3) (n-4) 3/2 = A! For negative fraction: nIn = Intl 3 - 1+1 = 1 1 = 1 17



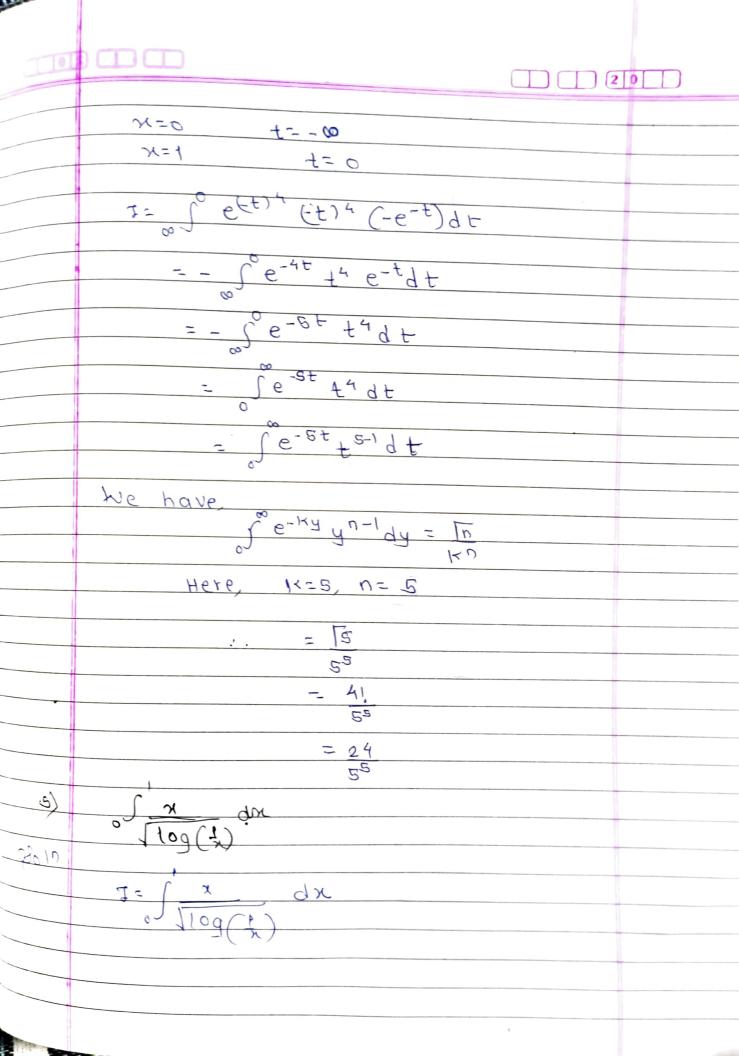
Transformation of gamma function. 1) Se-Ky n-1 dy = In As we have; [n= se-xxn-1dx Put x= ky dx = kdy x=00; y=0 In = Se-ky (Ky) n-1 K dy "Th = Je-Ky Km yn-1dy :. In = Kn Se-Kyn-1dy Se- Kyyn-1 dy = 10

In = Je-2 xn-1 dx Tn = 2 1 e-x2 x2n-1 dx T=1, To=00, T=1 m+1 =nm , +n =n; if nis the enteger The Intl if n is - We Je-Ky yn-1 dy= to Je-41/n dy= nTh TP 11-P = II 0 < p < 1 $\frac{1}{4}$ $\frac{3}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ A Comment

Solve the following questions 545n eth da Jon tet 7= 145x e-5x dx put Ix= + x= +2 I = (t2) 1/4 e-t 2tdt = 2 Se-t t 1/2 t'dt - 25e- + +3/2 dt = 2 Se-t t 5/2-1 dt 2 2 5 = 2 3+1 $\frac{2}{3}$ $\sqrt{9e^{-2n^2}dn}$ 2010 I= 2xde-5x3 9x put $2x^2 = t$ $x^2 = \frac{t}{2}$ Net

dn=1 + t/2dt J= (t) 9 = -t + t - t/2 dt $= \frac{1}{2\sqrt{2}} \int_{0}^{\infty} \frac{(t)^{9} e^{-t} t^{-t/2}}{(\sqrt{2})^{9}} dt$ = 1 ((\ft) 9 e-t t-1/2 dr -1 ge-t (t1/2)9t-1/2d+ ~ 1 00 e-t t 5-1 d+ = 1 5 = 1 HI <u>- 1 (24)</u> = 3

3) - 6-41dx T= Se-x dx Poin put χ4'=t χ=4JE = ±114 dn= 1 t-3/4 d+ x=0 t=0 N=00 f= 00 T- (e-+) 1 t-3/4 dt J= 1 Se-t t-3/4 d+ = 1 se-t +2-1 d+ = 1 1 4) S (n logn) dx Let F- S(nlogn) 7dn Poln = 1 x4 (10gx) 4 dx put togn=t x= e-t dx = - e - tdt



put $\log x = -t$ $\log (\frac{t}{x}) = t$ $dx = -e^{-t} dt$

x=0 , t=0

I= Set(e-t)d+

=- Se-t t-1/2 e-t dt = Se-2t t-1/2 dt

k= 2, n=1

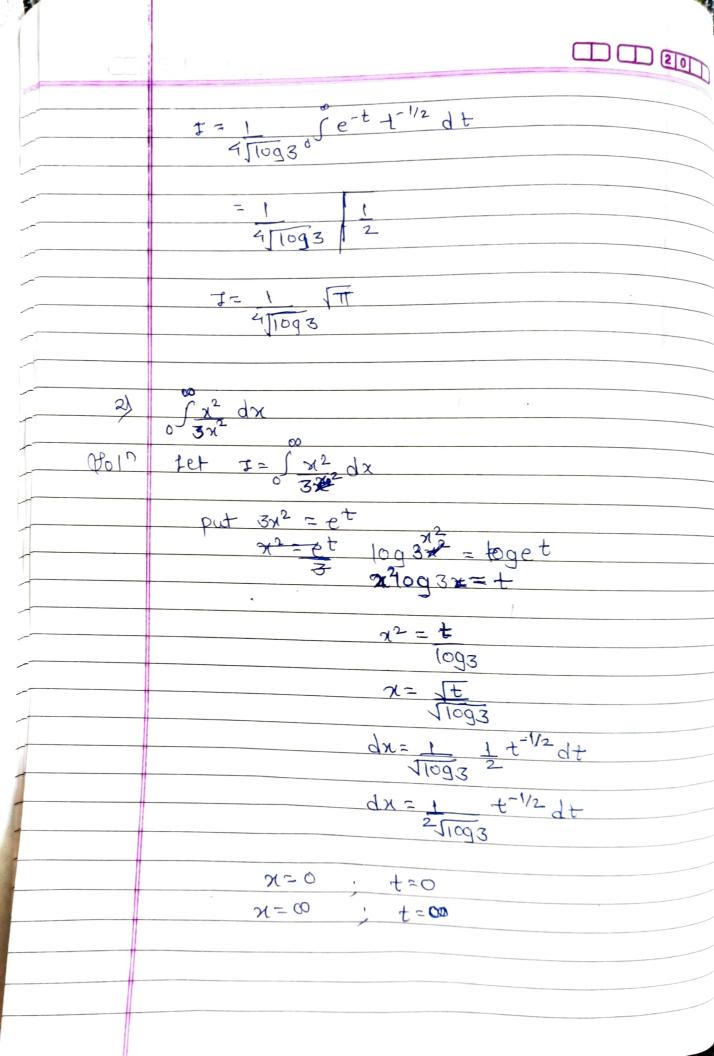
1/2 - TT 21/2 1/2

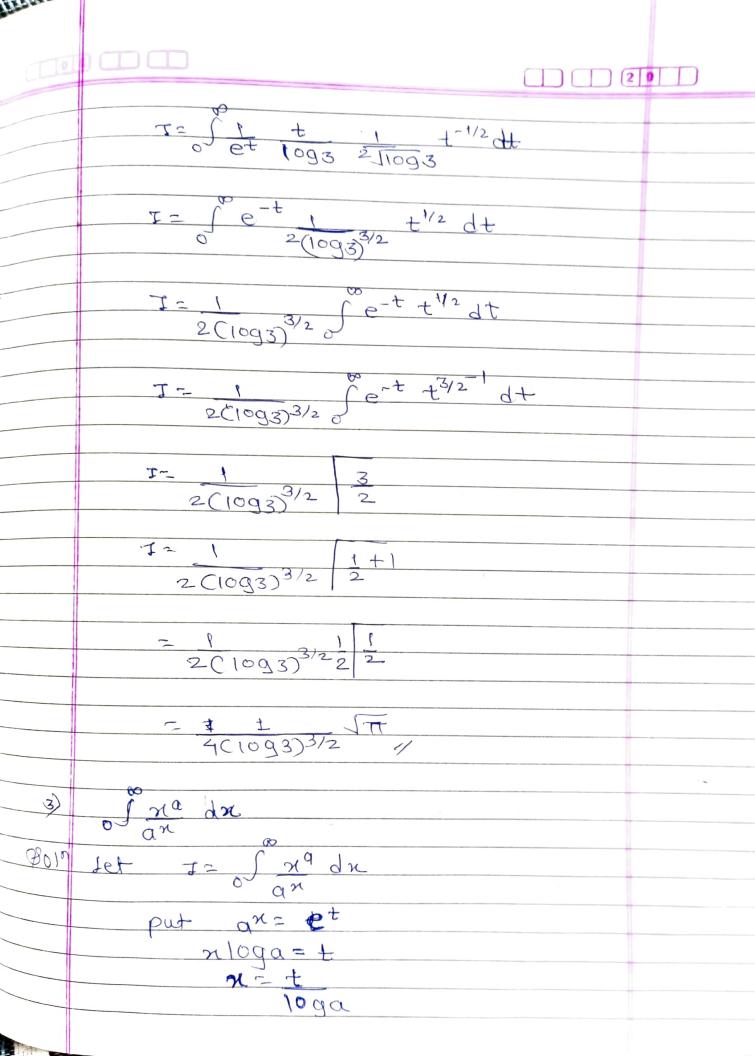
= I

evaluate of
$$\frac{dx}{s^{4n^2}}$$

for $\frac{dx}{s^{4n^2}}$

for $\frac{dx}{s^{4n^2}}$
 \frac{dx}





$$\frac{dx = 1}{\log a} \frac{dt}{dt}$$

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