NAME: IBENEME CHIOMA SARAH

DEPT: MBBS

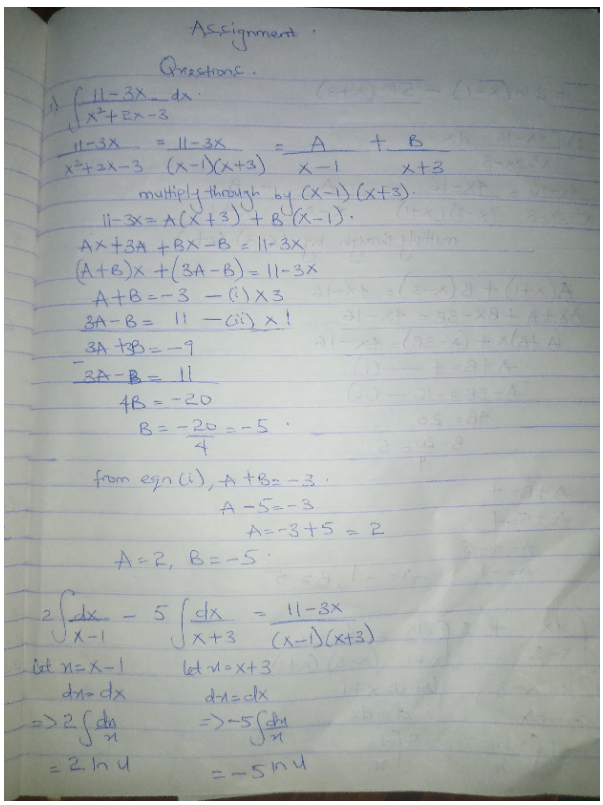
COLLEGE: MHS

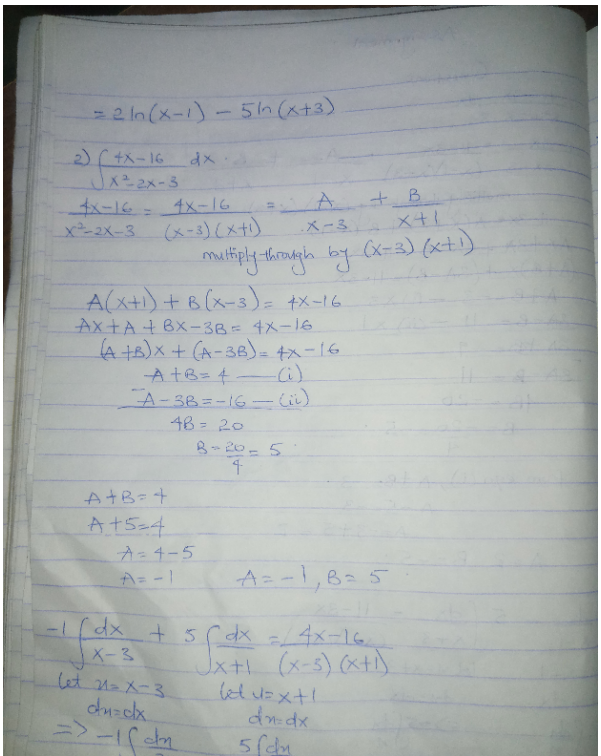
COURSE CODE: MAT 104

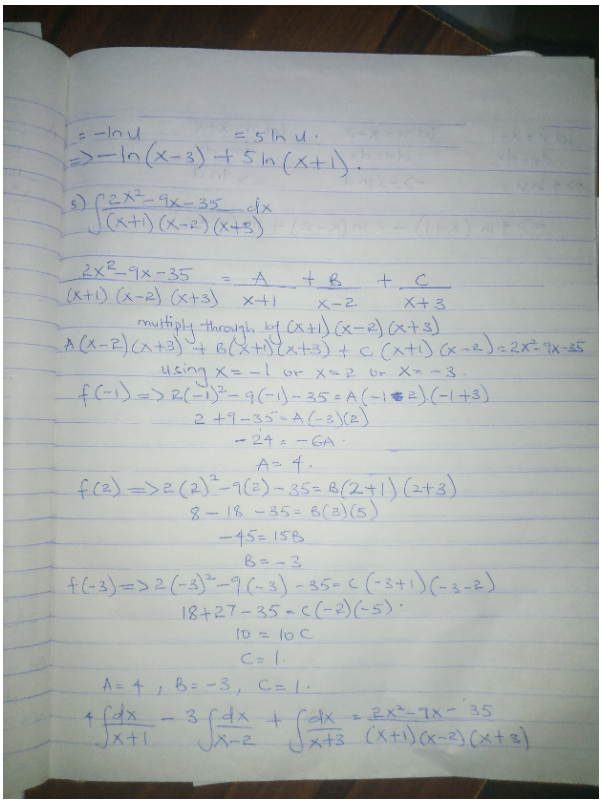
SERIAL NO:070

MATRIC NO: 19/MHS01/188

Assignment 9







$= -\ln u \qquad = 5\ln u$

$\Rightarrow -\ln(x-3) + 5\ln(x+1)$.

5) $\int \frac{2x^2-9x-35}{(x+1)(x-2)(x+3)}\,dx$

$\frac{2x^2-9x-35}{(x+1)(x-2)(x+3)} = \frac{A}{x+1} + \frac{B}{x-2} + \frac{C}{x+3}$

multiply through by $(x+1)(x-2)(x+3)$

$A(x-2)(x+3) + B(x+1)(x+3) + C(x+1)(x-2) = 2x^2-9x-35$

using $x=-1$ or $x=2$ or $x=-3$.

$f(-1) \Rightarrow 2(-1)^2 - 9(-1) - 35 = A(-1-2)(-1+3)$

$2+9-35 = A(-3)(2)$

$-24 = -6A$

$A = 4$.

$f(2) \Rightarrow 2(2)^2 - 9(2) - 35 = B(2+1)(2+3)$

$8 - 18 - 35 = B(3)(5)$

$-45 = 15B$

$B = -3$

$f(-3) \Rightarrow 2(-3)^2 - 9(-3) - 35 = C(-3+1)(-3-2)$

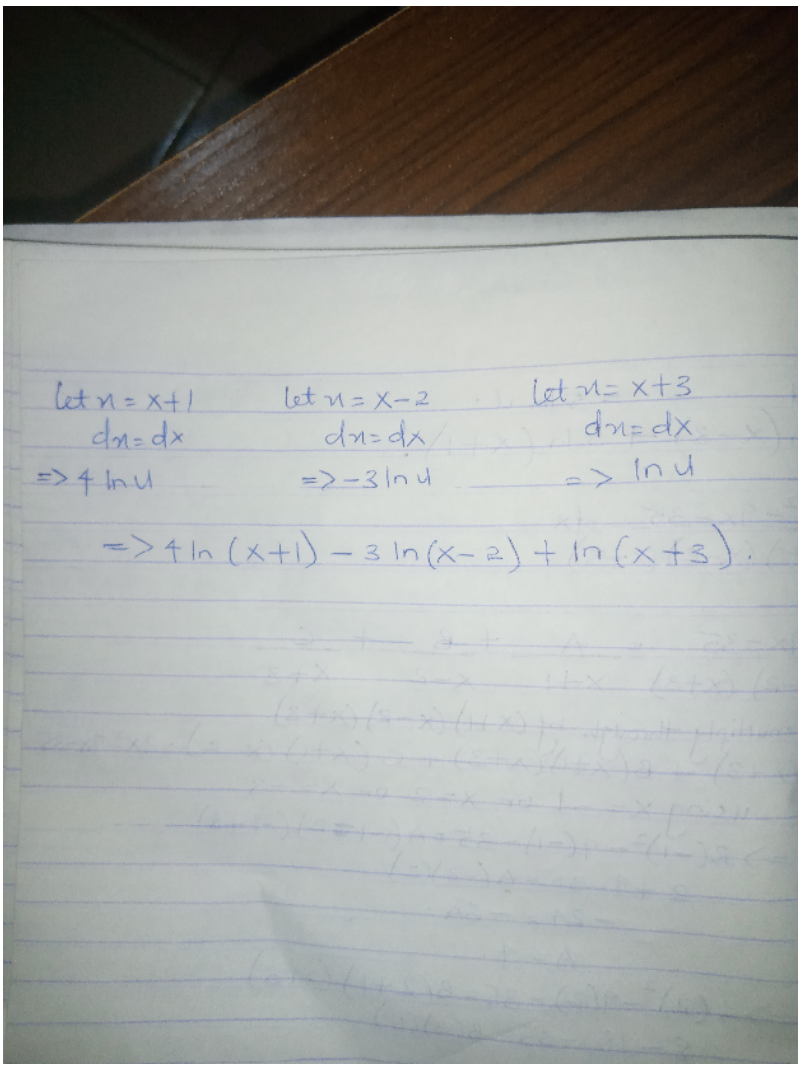
$18+27-35 = C(-2)(-5)$.

$10 = 10C$

$C = 1$.

$A = 4,\ B = -3,\ C = 1$.

$4\int \frac{dx}{x+1} - 3\int \frac{dx}{x-2} + \int \frac{dx}{x+3} = \frac{2x^2-9x-35}{(x+1)(x-2)(x+3)}$



Let $u = x+1$ — $du = dx$ — $\Rightarrow 4\ln u$

Let $u = x-2$ — $du = dx$ — $\Rightarrow -3\ln u$

Let $u = x+3$ — $du = dx$ — $\Rightarrow \ln u$

$\Rightarrow 4\ln(x+1) - 3\ln(x-2) + \ln(x+3)$.