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MATRIC NO: 19/MHS01/147

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: MEDICINE AND SURGERY

COURSE CODE: MAT 104

MATIDY ASSIGNMENT $\sin^6 x \, dx = \left((\sin^4 x)^3 \, dx \right)^3$ 1 $\left(\sin^2 \varkappa\right)^3 =$ $1 - \cos 2\pi$ $(1-\cos 2x)^3 dx$ = 1 8 1 - 3 cos 2n + 3 cos2 2x - cos3 2n da = 1 8 $(0S^{2}2n = 1 + (0S^{2}(2n)) = 1 + (0S^{4}n)$ 2 $\cos^{3}2n = \cos^{2}2n - \cos^{2}2n$ let $\cos^2 2\pi = 1 - \sin^2 2\pi$ = (1-51n222) cos 22 = 6052x - 5in22x cos2x . . 1 1-3 cos 2 2 + 3/1 + cos 2 2 - (LOSZ2 - Sin 22 COS22) dze 8 2 1-300522+3+3 + 30542 - LOS22 + Sin 2220522 dz = 1 8 5 - 4 cos 2n + 3 cos 4n + sin² 2x cos 2n du Ξ 8 2 sin² 22 cos 22 du let u = sin 22 ; du = 2 cos 22; du = 2 cos 22 da $\frac{u^2 du}{2} = \frac{1}{2} \left(\frac{u^2 du}{2} \right)$ ⇒ ($\frac{u^3}{3}$ \Rightarrow $+c = \frac{5in^3}{2i} + c$ 2 -

-- 1 5x-4sin2n + 3 sin 4n + sin3 2n 1 + C8 2 8 = 5 x - Zsin2x + 3sin 4x + sin32x + c 16 84 64 48 $= \frac{5x - 5in2x + 3sin4x}{4}$ + sin322 +0 48 2 Cost 2 Sin32 let u = cosz $\frac{du}{dx} = -\sin x$; $dx = \frac{du}{dx}$ -Sinze Recall Sin 2 2 + cos2 2 = 1 $\sin^2 \pi = 1 - \cos^2 \pi$ cost 2 . Sinz 2. Sinz dx ut . sin22 - Sinz - sinze ut . Sin 2 . Sipre . du 3 Since u4 (1 - cos22) dy 4 $u^{4}(1-u^{2}) du$ 5 (u4 - u6) du 1 (46 - 44) du Ξ u -- U5 +6 5 . .

$$\frac{(\cos x)^7 - (\cos x)^5 + C}{7 - 5}$$

$$= \frac{(\cos^7 x) - (\cos^5 x) + C}{7 - 5}$$

$$\frac{3}{5} \int (\cos x \sin^3 x \, dx)$$

$$\frac{1}{2} \left[4t \ u = \cos x \ ; \ du = -\sin x \ ; \ dx = \frac{du}{dx} - \frac{1}{\sin^2 x} \right]$$

$$\frac{1}{2} \left[\cos^2 x + \frac{1}{\cos^2 x} + \frac{1}{2} - \frac{1}{\cos^2 x} \right]$$

$$\frac{1}{2} \int (u \sin^2 x \sin x \, du) - \frac{1}{2} \sin^2 x - \frac{1}{2} \sin^2 x \sin x \, du$$

$$\frac{1}{2} - \int (u \sin^2 x \sin^2 x \sin x \, du) - \frac{1}{2} \sin^2 x - \frac{1}{2} \sin^2 x \sin^2 x \, du$$

$$\frac{1}{2} - \int (u (1 - \cos^2 x) \, du) - \frac{1}{2} \sin^2 x -$$