Prepa Tec
Calculus II

Campus Cumbres
2nd 2st partial Quiz # 2A

100

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I. Solve the following integrals. SHOW THE STEPS OF YOUR PROCEDURE. (20 points each)

$du = 2c$ $du = -2\sin$

1. $\int Sin^3(2x)dx = \int \sin(2x)\sin^2(2x)dx = \int \sin(2x)(1-\cos^2(2x))dx = \int \sin(2x) - \sin(2x)\cos^2(2x)$

$-\frac{\cos(2x)}{2} + \frac{\cos^3(2x)}{6} + C$

they are the same

$\frac{\cos^3(2x)}{6} - \frac{\cos(2x)}{2} + C$

$du = 14x^6$

2. $\int x^6 \cos^2(x^7)dx = \int x^6 (\frac{1}{2}(1+\cos(2x^7)))dx = \frac{1}{2}\int x^6 + x^6\cos(2x^7)dx = \frac{1}{2}[\frac{x^7}{7} + \frac{\sin(2x^7)}{14}$

$\frac{x^7}{14} + \frac{\sin(2x^7)}{28} + C$

3. $\int 9x^4 \tan^3(x^5)dx = \int 9x^4(\tan(x^5)(\tan^2(x^5)))dx - \int 9x^4((\tan(x^5))(\sec^2 x^5 - 1))dx =$

$d = 5x^4\sec^2 x^5$ $du = 5x^4$

$\int 9x^4\tan(x^5)\sec^2 x^5 - 9x^4\tan(x^5)dx = \frac{9\tan^2(x^5)}{10} + \frac{9\ln|\cos(x^5)|}{5} + C$

4. $\int x^3 \sin^2(x^4)\,dx = \int x^3\left(\frac{1}{2}\left(1-\cos 2x^4\right)\right)dx = \frac{1}{2}\int x^3 - x^3\cos \overset{du = 8x^3}{2x^4}\,dx = \frac{1}{2}\left[\frac{x^4}{4} - \frac{\sin 2x^4}{8}\right] =$

$\boxed{\frac{x^4}{8} - \frac{\sin 2x^4}{16} + C}$

5. $\int Cot^2(5x)\,dx = \int \left(\csc^2(\overset{5}{5x}) - 1\right)dx = \boxed{-\frac{\cot(5x)}{5} - x + C}$

BONUS (8 POINTS)

$\int Cos^5(3x)\,dx$

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