241112 คณิตศาสตร์ 2
Mathematics II

University of Phayao
Department of Mathematics

Homework 2
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Instructions: จงหาค่าปริพันธ์ต่อไปนี้

1. $\displaystyle\int \sin^{-7} x \cos x\, dx$ **Ans.** $-\dfrac{\csc^6 x}{6} + C$

2. $\displaystyle\int \sin^5 2x \cos^3 2x\, dx$ **Ans.** $\dfrac{\sin^6 2x}{12} - \dfrac{\sin^8 2x}{16} + C$

3. $\displaystyle\int \sin^2 3x \cos^2 3x\, dx$ **Ans.** $\dfrac{x}{8} - \dfrac{\sin 12x}{96} + C$

4. $\displaystyle\int \sin^4 x\, dx$ **Ans.** $\dfrac{3x}{8} - \dfrac{\sin 2x}{4} + \dfrac{\sin 4x}{32} + C$

5. $\displaystyle\int (\tan\theta + \cot\theta)^2 d\theta$ **Ans.** $\tan\theta - \cot\theta + C$

6. $\displaystyle\int (\sec\theta - \tan\theta)^2 d\theta$ **Ans.** $2(\tan\theta - \sec\theta) - \theta + C$

7. $\displaystyle\int \tan^5 x\, dx$ **Ans.** $\dfrac{\tan^4 x}{4} - \dfrac{\tan^2 x}{2} - \ln\sec x + C$

8. $\displaystyle\int \tan^3 2x \sec^3 2x\, dx$ **Ans.** $\dfrac{\sec^5 2x}{10} - \dfrac{\sec^3 2x}{6} + C$

9. $\displaystyle\int \cot 3x \csc^4 3x\, dx$ **Ans.** $-\dfrac{\cot^2 3x}{6} - \dfrac{\cot^4 3x}{12} + C$

10. $\displaystyle\int \dfrac{\cot^3 x}{\csc x}\, dx$ **Ans.** $-\csc x - \sin x + C$