Worksheet 2

Claudiu Raicu

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1. Evaluate $\int_0^\pi \sin^2(t) \cos^4(t) dt$.

2. Evaluate $\int \sec^2(x) \tan(x) dx$.

3. Evaluate $\int (\tan^2(x) + \tan^4(x)) dx$.

4. If m and n are positive integers, show that

$$\int_{-\pi}^{\pi} \sin(mx) \cos(nx) dx = 0.$$