Math 2414: Calculus II

Homework

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1. Evaluate
$$\int \sin^4 x \ dx$$

2. Evaluate
$$\int \cos^7 x \, dx$$

3. Evaluate
$$\int_0^{\pi/2} \cos^{12} x \, dx$$

$$\mathbf{4.} \quad \text{Evaluate} \quad \int_0^{\pi/2} \cos^{15} x \, dx$$

$$5. Evaluate \int \sqrt{9-4x^2} \ dx$$

6. Evaluate
$$\int \frac{dx}{\sqrt{x^2 - 25}}$$

7. Evaluate
$$\int \frac{dx}{x^2 \sqrt{x^2 + 36}}$$

1.
$$\frac{3}{8}x - \frac{1}{4}\sin 2x + \frac{1}{32}\sin 4x + C$$

2.
$$\sin x - \sin^3 x + \frac{3}{5}\sin^5 x - \frac{1}{7}\sin^7 x + C$$

3.
$$\frac{231}{2^{11}}\pi$$

4.
$$\frac{2^{11}}{6.43^6}$$

5.
$$\frac{9}{4}\sin^{-1}\left(\frac{2x}{3}\right) + \frac{1}{2}x\sqrt{9 - 4x^2} + C$$

6.
$$\ln \left| \frac{x}{5} + \frac{\sqrt{x^2 - 25}}{5} \right| + C$$

7.
$$-\frac{\sqrt{x^2+36}}{36x}+6$$