

Trigonometric integrals and Trigonometric Substitutions- HW Problems

Evaluate the following integrals.

1. $\int_0^{\frac{\pi}{2}} \cos^3(x) dx$

2. $\int [\sin^3(x)][\cos^2(x)] dx$

3. $\int \cos^4(x) dx$

4. $\int [\tan^2(x)][\sec^4(x)] dx$

5. $\int_0^{\frac{\pi}{3}} [\tan^3(x)][\sec^4(x)] dx$

6. $\int \cot(\theta) d\theta$

7. $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \cot^3(t) dt$

8. $\int [\sin(x)][\sin(2x)] dx$

9. $\int_0^{\frac{\pi}{4}} [\tan^2(x)] dx$

10. $\int \frac{1 - \tan^2(\theta)}{\sec^2(\theta)} d\theta$

11. $\int_0^1 x^2 \sqrt{1 - x^2} dx$

12. $\int x^3 \sqrt{x^2 + 1} dx$

13. $\int \frac{dx}{\sqrt{x^2 + 9}}$

14. $\int \frac{dt}{t^2 \sqrt{t^2 - 4}}$

15. $\int \sqrt{4 - x^2} dx$