

Math 122
Quiz 2 Review

1. $\int x^2 \ln x \, dx$

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

3. $\int x e^{x^2} \, dx$

4. $\int x e^{2x} \, dx$

5. $\int x^2 e^{2x} \, dx$

6. $\int \cos^3 2x \, dx$

7. $\int (\cos^2 3x)(\sin^2 3x) \, dx$

8. $\int (\sin^5 x)(\cos^2 x) \, dx$

9. $\int (\sec^3 x)(\tan^3 x) \, dx$

10. $\int (\sec^4 x)(\tan^2 x) \, dx$

11. $\int \sqrt{\tan x} \sec^4 x \, dx$

12. $\int \sqrt{\sec x} \tan^3 x \, dx$

13. $\int \frac{x^3}{\sqrt{1-x^2}} \, dx$

14. $\int \frac{1}{\sqrt{x^2+4}} \, dx$

15. $\int \frac{1}{(16-x^2)^{3/2}} \, dx$

16. $\int \frac{1}{\sqrt{4x^2+9}} \, dx$

Answers

1. $\frac{1}{3}x^3 \left[\ln|x| - \frac{1}{3} \right] + C$
2. $x^2 \sin x + 2x \cos x - 2 \sin x + C$
3. $\frac{1}{2}e^{x^2} + C$
4. $\frac{xe^{2x}}{2} - \frac{e^{2x}}{4} + C$
5. $\frac{x^2}{2}e^{2x} - \frac{x}{2}e^{2x} + \frac{1}{4}e^{2x} + C$
6. $\frac{1}{2} \left[\sin 2x - \frac{\sin^3 2x}{3} \right] + C$
7. $\frac{x}{8} - \frac{1}{96} \sin 12x + C$
8. $-\frac{\cos^3 x}{3} + \frac{2 \cos^5 x}{5} - \frac{\cos^7 x}{7} + C$
9. $\frac{\sec^5 x}{5} - \frac{\sec^3 x}{3} + C$
10. $\frac{\tan^5 x}{5} + \frac{\tan^3 x}{3} + C$
11. $\frac{2}{7} \tan^{7/2} x + \frac{2}{3} \tan^{3/2} x + C$
12. $\frac{2}{5} \sec^{5/2} x - 2 \sec^{1/2} x + C$
13. $\frac{(\sqrt{1-x^2})^3}{3} - \sqrt{1-x^2} + C$
14. $\ln \left| \frac{x}{2} + \frac{\sqrt{x^2+4}}{2} \right| + C$
15. $\frac{x}{16\sqrt{16-x^2}} + C$
16. $\frac{1}{2} \ln \left| \frac{\sqrt{4x^2+9}}{3} + \frac{2x}{3} \right| + C$