

Mat 115 Worksheet 4 Answers
Thursday, Oct 12 2017

1. $\frac{1}{3}(2x+1)^{3/2} + C$
2. $\frac{2}{45}(1+3x)^{5/2} - \frac{2}{27}(1+3x)^{3/2} + C$
3. $\frac{2}{7}(x+1)^{7/2} - \frac{4}{5}(x+1)^{5/2} + \frac{2}{3}(x+1)^{3/2} + C$
4. $-2/27$
5. $-\frac{1}{4(x^2+2x+2)^2} + C$
6. $\frac{1}{3}\cos^3 x - \cos x + C$
7. $\frac{3}{7}(x-1)^{7/3} + \frac{3}{4}(x-1)^{4/3} + C$
8. $-\frac{1}{2}\csc^2 x + C$
9. $8/3 - \sqrt{3}$
10. $\frac{1}{3+\cos x} + C$
11. $\frac{2}{\sqrt{\cos x}} + C$
12. $2(\cos 2 - \cos 3)$
13. $-\frac{\cos x^n}{n} + C$
14. $-\frac{1}{3}\sqrt{1-x^6} + C$
15. $\frac{4}{9}(1+x)^{9/4} - \frac{4}{5}(1+x)^{5/4} + C$
16. $x(x^2+1)^{-1/2} + C$
17. $\frac{1}{40}(8x^3+27)^{5/3} + C$
18. $\frac{3}{2}(\sin x - \cos x)^{2/3} + C$
19. $2\sqrt{1+\sqrt{1+x^2}} + C$
20. $-\frac{5}{2}(x-1)^{2/5} + C$
21. 3
22. $\ln|\ln x| + C$
23. -2
24. $2e^{\sqrt{x}} + C$
25. $\pi/12$
26. $e^x + x + C$
27. $3\pi/16$
28. (a) Follow the hint and use the fact $\sin(\pi - x) = \sin x$. (b) $\pi^2/4$
29. Apply $\cos x \sin x = \frac{1}{2}\sin 2x$, and then use the substitution $u = \pi/2 - 2x$. Finally, apply the cofunctions property $\sin(\pi/2 - \theta) = \cos \theta$, and use symmetry of $\cos^m(u)$.