

Math 1312 — Worksheet # 1
Techniques of Integration

1. $\int te^{t^2} dt$

2. $\int te^{2t} dt$

3. $\int t^3 \cos(t^2) dt$

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

5. $\int \frac{dx}{\sqrt{1-x}}$

6. $\int \sec(5\theta) d\theta$

7. $\int \sin^2 x dx$

8. $\int \cot(3\alpha) d\alpha$

9. $\int \cos^3 x dx$

10. $\int \sec^3(2\phi) d\phi$

11. $\int \sqrt{4+7t} dt$

12. $\int \sqrt{4+7t^2} dt$

13. $\int \sqrt{1-6t^2} dt$

14. $\int t^2 \sqrt[3]{1-7t^3} dt$

15. $\int t^2 \sin(2t) dt$

16. $\int e^{-t^2} dt$

17. $\int \cos(\sqrt{t}) dt$

18. $\int \sin^8 x \cos^5 x dx$

19. $\int e^x \cos 2x dx$

20. $\int x^5 \ln x dx$

21. $\int \sin 3x \cos 4x dx$

22. $\int \frac{x}{1+2x^2} dx$

23. $\int \frac{dx}{4+x^2}$

24. $\int \frac{dx}{1-x^2}$

25. $\int \frac{2x}{(x^2+1)(x-1)^2} dx$

26. $\int \frac{4t+1}{t^2+t-2} dt$

27. $\int \frac{u^2+11}{u^2+4u+5} du$