

AP Calculus Pitt Review May 2018

2 Questions. Topics: Integration including u substitution, trig powers, natural logs, parts, inverse trig, trig substitution, partial fractions....

Integrate each. Show all work:

1. $\int 3x^2\sqrt{4x^3 - 8} dx$

5. $\int_0^\pi \cos \frac{x}{6} dx$

2. $\int_0^3 \frac{1}{\sqrt{x+1}} dx$

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

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

7. $\int xe^{3x} dx$

4. $\int_{-3}^{-2} x(x+3)^4 dx$

8. $\int xe^{x^2} dx$

9. $\int \ln(4x) dx$

14. $\int \frac{x dx}{\sqrt{1-25x^2}}$

10. $\int x \ln(4x) dx$

15. $\int \frac{dx}{\sqrt{9-x^2}}$

11. $\int_{\frac{\pi}{6}}^{\frac{\pi}{8}} \tan(2x) dx$

16. $\int \frac{1}{x^2-6x+9} dx$

12. $\int x \cos x dx$

17. $\int \sin^{-1}(3x) dx$

13. $\int \frac{e^x}{1+e^x} dx$

18. $\int \tan^{-1} x \, dx$

23. $\int_0^1 \frac{3}{x^2 - 6x + 9} \, dx$

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

24.

20. $\int \sin^3(3x) \, dx$

25. $\int_0^2 \frac{1}{\sqrt{4+x^2}} \, dx$

21. $\int \frac{10x-9}{2x^2-5x-3} \, dx$

22. $\int \frac{x}{x^2-5x+4} \, dx$

26. $\int_0^3 \frac{1}{9+x^2} \, dx$

