Math 134 Managerial Calculus
Homework 15 Spring 2021

Due April 26, 2021

For problems #1-14, find the indefinite integral using integration by substitution.

1. $$\int 5(5x+3)^{10}\ dx$$

2. $$\int 6x(3x^2+1)^8\ dx$$

3. $$\int (6x^2-6x+5)(2x^3-3x^2+5x+1)^5\ dx$$

4. $$\int \frac{8x+3}{(4x^2+3x+1)^4}\ dx$$

5. $$\int x^2(x^3+1)^4\ dx$$

6. $$\int x^3(x^4+2)^{\frac{4}{3}}\ dx$$

7. $$\int \frac{x^5}{2-x^6}\ dx$$

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

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

10. $$\int xe^{x^2}\,dx$$

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

12. $$\int \frac{\ln 4x}{x}\,dx$$

13. $$\int \frac{(\ln x)^5}{x}\,dx$$

14. $$\int \frac{\sqrt{\ln x}}{x}\,dx$$

For problem #15, find the function f given that the slope of the tangent line to the graph at f at any point $(x, f(x))$ is $f'(x)$ and that the graph of f passes through the given point.

15. $$f'(x) = 10(2x-1)^4;\ (1,3)$$

Challenge problem (You can get full credit on the homework if you skip this)

If you skipped any problems from #1-15, this problem won't be graded.

16. Find the indefinite integral.

$$\int x^3(x^2+1)^{\frac{3}{2}}\ dx$$