MTH 1126 Practice Test #1
Spring 2017

Pat Rossi   Name _____

Instructions

Answers appear on the ANSWERS page. Solutions appear on the SOLUTIONS page.

1. Compute: $\int \left(5x^4 + 4x^3 + 6x + 6\right) dx =$

2. Compute: $\int \left(\sin(x) + \sec(x)\tan(x)\right) dx =$

3. Compute: $\int_{x=1}^{x=2} \left(6x^3 + 4x^2 + 4x\right) dx =$

4. Compute: $\int \left(8x^3 + 12x^2\right)^{10} \left(x^2 + x\right) dx =$

5. Compute: $\int \sin\left(x^3 + 3x^2\right)\left(6x^2 + 12x\right) dx =$

6. Compute: $\int \frac{x+1}{3x^2+6x} dx =$

7. Compute: $\frac{d}{dx}\left[\ln\left(\sin(x)\right)\right] =$

8. Compute: $\frac{d}{dx}\left[\ln\left(3x^3 - 9x + 5\right)\right] =$

9. Compute: $\frac{d}{dx}\left[\ln\left(\sqrt{\frac{x^2-1}{x}}\right)\right] =$

10. Compute: $\int_{x=-1}^{x=1} \left(x^2 - 3x + 1\right)^3 (8x - 12) dx =$

11. Compute: $\int \frac{\cos x + 2x^2}{3\sin(x) + 2x^3} dx =$

12. Compute: $\frac{d}{dx}\left[e^{\cos(x)}\right] =$

13. Compute: $\int \frac{e^x}{\sqrt{4 - e^{2x}}} dx =$

14. Given that $\ln(2) \approx 0.7$ and $\ln(5) \approx 1.6$, approximate the following:

    (a) $\ln(10) =$

    (b) $\ln(50) =$

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

16. $\frac{d}{dx}\left[\tan^{-1}\left(\sin(x)\right)\right] =$

17. Write the given equation in algebraic form:

    $z = \cos\left(\arcsin(2x)\right)$

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

19. Write the given equation in algebraic form:

$$z = \sec\left(\tan^{-1}(x)\right)$$

20. $\frac{d}{dx}\left[\arccos(3x - \pi)\right] =$

21. $\int_0^1 \frac{1}{\sqrt{4-x^2}} dx =$

22. $\int \frac{\sec^2(x)}{\sqrt{\tan^3(x)}} dx =$

23. $\frac{d}{dx}\left[e^{\left(\tan\left(3x^2\right)\right)}\right] =$

24. $\int e^{\left(2x^2+7\right)} x\, dx =$

25. $\frac{d}{dx}\left[\sin^{-1}\left(\sqrt{x}\right)\right] =$

26. Write the given equation in algebraic form:

$$z = \cos\left(\arcsin\left(\frac{x-h}{r}\right)\right)$$

27. $\frac{d}{dx}\left[\arctan\left(3x^2\right)\right] =$

28. $\int \frac{e^{2x}}{4+e^{4x}} dx =$

29. $\int_{\frac{2}{\sqrt{3}}}^2 \frac{1}{x\sqrt{x^2-1}} dx =$

30. Compute: $\int \frac{e^{6x}+x}{e^{6x}+3x^2} dx =$