

Calculus 1510 Tutorial #9

A, Integrate

1. $\int \left(x^4 - \frac{1}{\sqrt[3]{x^2}} + e^x - x^\pi + \pi^e \right) dx$

2. $\int \left(2\sqrt{x} + 3x^{\frac{2}{3}} - 5x^{\frac{5}{2}} \right) dx$

3. $\int \sqrt{x}(x+1) dx$

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

5. $\int (x+5)^{\frac{5}{2}} dx$

6. $\int \frac{1}{\sqrt{4x+3}} dx$

7. $\int 3e^{2x} dx$

8. $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$

9. $\int \frac{(\ln x)^3}{x} dx$

10. $\int \frac{\cos x}{\sin^3 x} dx$

11. $\int \frac{\sin\left(\frac{\pi}{x}\right)}{x^2} dx$

- B. 12. Acceleration of an object moving along the x -axis with $0 \leq t \leq 10$ is specified by $a(t) = 120t - 12t^2$. Furthermore, the velocity at $t = 0$ is 0 and the position of the particle at $t = 0$ is 4m. Find the velocity and position functions.

13. Find $f(2)$ if $f''(x) = 18x + 10$, $f'(1) = 18$ and $f(0) = 2$.