Derivative Rules:

Definition

Interpretation

Constant Rule:

Power Rule:

Summation Rule:

Product Rule:

Quotient Rule:

Chain Rule:

Special Derivatives

Derivative Worksheet

1. $f(x) = \pi^2 + x^2 + \sin(x) + \sqrt{x}$

2. $f(x) = x^2 + \cos(x) + \frac{1}{x^3} - \sin(\pi^2)$

3. $f(x) = x^2(x^4 - 2x)$

4. $f(x) = x^2 \cos(x)$

5. $f(x) = x^3 \sin(x)$

6. $f(x) = cot(x)$

7. $f(x) = \frac{\sin(x)}{x^4 - 3}$

8. $f(x) = \sin(x^3 - 1)$

9. $f(x) = \sin(\cos(\sqrt{x^3 - 1}))$

10. $f(x) = x(x^4 - 2x)^2$

11. $f(x) = x^2 \sin(x^3 - 1)$

12. $f(x) = \tan(x^3)$

13. $f(x) = \tan(x^3)\sqrt{3 - 4x}$

14. $f(x) = \pi^2 \sin\left(\frac{\pi}{6}\right)$

15. $f(x) = \frac{x^4 - 2x + 3}{x^2}$

16. $f(x) = \frac{x^2}{x^4 - 2x + 3}$

17. $f(x) + \frac{\sin(x)}{(x^4 - 3)^4}$

18. $f(x) = \frac{x^2 \cos(x)}{(1 - 2x)^2}$

19. $f(x) = \frac{\sin(x)}{x^2 - 3\sqrt{x}}$

20. $f(x) = \frac{x \sin(x)}{1 - 2x}$

21. $f(x) = 3x^5 - 2x^3 + 5x - 1$, find $f''(x)$

22. $f(x) = 3x^5 - 2x^3 + 5x - 1$, find $f^{(7)}(x)$

23. $f(x) = \sin(x)$, find $f^{(24)}(x)$

24. $f(x) = x \sin(x)$, find $f'''(x)$