Some Rules for Differentiation

1. Find the derivative of the function
(similar to p.100 #1-24)

$$h(x) = 4x^3$$

2. Find the derivative of the function
(similar to p.100 #1-24)

$$y = 3x^3 - x^2 + 7x + 5$$

3. Find the derivative of the function
(similar to p.100 #1-24)

$$h(x) = x^{3/2}$$

4. Find the derivative of the function
(similar to p.100 #1-24)

$$g(x) = \sqrt[5]{x} + 3$$

5. Find the derivative of the function
(similar to p.100 #1-24)

$$f(x) = 5x^{-2} + 4$$

6. Find the derivative of the function
(similar to p.100 #25-30)

$$f(x) = \frac{3}{(2x)^3}$$

7. Find the derivative of the function
(similar to p.100 #25-30)

$$f(x) = \frac{5x^2}{x^{-5}}$$

8. Find the derivative of the function
(similar to p.100 #31-36)

$$f(x) = \frac{6}{3\sqrt[5]{x^2}}$$

9. Find f'(x)
(similar to p.101 #51-60)

$$f(x) = 3x^2 - 5x - 2x^{-3} + 4x^{-4}$$

10. Find f'(x)
(similar to p.101 #51-60)

$$f(x) = (7x^2 - 4x)(x^2 + 3)$$

11. Find f'(x)
(similar to p.101 #51-60)

$$f(x) = \frac{-2x^3 + 4x^2 - 5x + 7}{x}$$

12. Find the slope of the graph of the function at the given point
(similar to p.101 #37-44)

$$y = 5x\left(x^3 - \frac{6}{x}\right) \quad at \quad (2,50)$$

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13. Find an equation of the tangent line to the graph of the function at the given point.
(similar to p.101 #45-50)

$$y = 2x^3 - x \quad at \quad (-1,-1)$$

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14. Find an equation of the tangent line to the graph of the function at the given point.
(similar to p.101 #45-50)

$$f(x) = \frac{1}{\sqrt[3]{x}} - 3x \quad at \quad (1,-2)$$

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15. Determine the point(s), if any, at which the graph of the function has a horizontal tangent line.
(similar to p.101 #63-66)

$$y = 2x^3 - 21x^2$$