

Harder Differentiation By Rule

Find $\frac{dy}{dx}$ when:

- (a) $y = x^3(x + 2)$
- (b) $y = 2x(x^5 - 4x^3)$
- (c) $y = (x + 7)(x - 3)$
- (d) $y = (3x - 5)(2x + 1)$
- (e) $y = (x^2 + 3)(x - 5)$
- (f) $y = x(x + 4)(x - 4)$

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Find $\frac{dy}{dx}$ when:

- (a) $y = \frac{8x^5 + 6x^2}{2}$
- (b) $y = \frac{x^4 - 2x^3}{x}$
- (c) $y = \frac{10x^4 - 5x^3}{2x}$
- (d) $y = \frac{9x^7 + 2x^3}{3x^2}$
- (e) $y = \frac{4x^2(x-7)}{2x}$

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- (e) $y = 2x^5 + x^3 - \frac{3}{x}$
- (f) $y = 7x^2 + 4x + \frac{5}{2x}$
- (g) $y = 6x^3 + \frac{1}{x} - \frac{5}{x^2}$
- (h) $y = (x + 3)\left(x + \frac{1}{x}\right)$
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