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) $y = x(x+4)(x-4)$

(a) $\frac{dy}{dx} = 4x^3 + 6x^2$

(b) $\frac{dy}{dx} = 12x^5 - 32x^3$

(c) $\frac{dy}{dx} = 2x + 4$

(d) $\frac{dy}{dx} = 12x - 7$

(e) $\frac{dy}{dx} = 3x^2 - 10x + 3$

(f) $\frac{dy}{dx} = 3x^2 - 16$

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) $y = \frac{4x^2(x-7)}{2x}$

(a) $\frac{dy}{dx} = 20x^4 + 6x$

(b) $\frac{dy}{dx} = 3x^2 - 4x$

(c) $\frac{dy}{dx} = 15x^2 - 5x$

(d) $\frac{dy}{dx} = 15x^4 + \frac{2}{3}$

(e) $\frac{dy}{dx} = 4x - 14$

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

(a) $y = \frac{7}{x}$ (b) $y = -\frac{3}{x^2}$

(c) $y = \frac{5}{2x}$ (d) $y = \frac{4}{5x^3}$

(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) $y = (x+3)\left(x + \frac{1}{x}\right)$

(i) $y = \frac{10x^4+4x^2+2}{2x}$

(a) $\frac{dy}{dx} = -\frac{7}{x^2}$ (b) $\frac{dy}{dx} = \frac{6}{x^3}$

(c) $\frac{dy}{dx} = -\frac{5}{2x^2}$ (d) $-\frac{12}{5x^4}$

(d) $\frac{dy}{dx} = 10x^4 + 3x^2 + \frac{3}{x^2}$

(f) $\frac{dy}{dx} = 14x + 4 - \frac{5}{2x^2}$

(g) $\frac{dy}{dx} = 18x^2 - \frac{1}{x^2} + \frac{10}{x^3}$

(h) $\frac{dy}{dx} = 2x + 3 - \frac{3}{x^2}$

(i) $\frac{dy}{dx} = 15x^2 + 2 - \frac{1}{x^2}$