Product and Quotient Rule

1. $\frac{dy}{dx} = x^2 \cos x + 2x \sin x$

2. $\frac{dy}{dx} = -x^3 \sin x + 3x^2 \cos x$

3. $\frac{dy}{dx} = 3x^3 + 12x^3 \ln x$

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

5. $\frac{dy}{dx} = e^x(3x + 8)$

6. $\frac{dy}{dx} = 9x^2 + 10x$

7. $\frac{dy}{dx} = \frac{x^2+1}{x} + 2x \ln x$

8. $\frac{dy}{dx} = -5x \sin x + 5 \cos x$

9. $\frac{dy}{dx} = \frac{-13}{(5x-1)^2}$

10. $\frac{dy}{dx} = \frac{-24}{(2x-5)^2}$

11. $\frac{dy}{dx} = \frac{6}{(x+2)^2}$

12. $\frac{dy}{dx} = \frac{e^x(x-1)}{x^2}$

13. $\frac{dy}{dx} = \frac{x \cos x - \sin x}{x^2}$

14. $\frac{dy}{dx} = \frac{-28x}{(3x^2-5)^2}$

15. $\frac{dy}{dx} = \frac{18x^2-12x-10}{(6x-2)^2}$