All odd problems in the Chapter 3 of the textbook (pages 20–21).

Compute the derivative y'.

1. $y = (x^2 + 1)(x^3 + 1)$ (Two ways: Product Rule and expanding first.)

3. $y = (x - 1)(x^5 + x^4 + x^3 + x^2 + x + 1)$ (Two ways.)

5. $y = \frac{5x+6}{x^2+1}$

7. $y = \frac{x^3-x}{x^5-x^3+1}$

9. $y = \frac{x^2}{2}$

11. $y = (x^3 + 1)(x^2 + 1)(x + 1)$ (Two ways.)

13. $y = \frac{(x^3-2x^2+7x+1)(x^2-x+3)}{x^3+1}$

15. $y = \frac{(x^2+1)(x^4+1)}{(x^3+1)(x^5+1)}$ (Use Quotient Rule. For numenator and for denominator, use Product Rule.)

17. $y = (\frac{1}{3}x^3 + \frac{1}{2}x^2 + x + 1)(\frac{1}{5}x^5 + \frac{1}{4}x^4 + x + 1)$ (Use Product Rule.)

19. If $f = g^2$, prove $f'(1) = 2g(1)g'(1)$.