

Product Rule Answer Key

1. $y' = 12(3x - 2)^3$

2. $y' = \frac{1}{\sqrt{2x - 5}}$

3. $y' = 1 + \frac{10}{x^2}$

4. $y' = 30(5x - 1)^5$

5. $y' = 50x^4 + 80x^3 - 39x^2 + 16x + 5$

6. $y' = (3x^2 + 7)^2 (27x^4 - 7)$

7. $y' = (-5x + 4)^2 (x^3 - 2x^2) (-45x^3 + 94x^2 - 32x)$

8. $y' = (x^4 - 2)^3 (17x^4 - 2)$

9. $y' = \frac{(4x^3 + x)(-16x^4 - 56x^3 + 12x^2 - 14x)}{(2x^2 - 7x)^5}$

10. $2(2x - 5)^3 (x^2 - 7)^4 (14x^2 - 25x - 28)$

11. $y = \frac{3}{2}x - \frac{3}{2}$

12. Inc: $(0, 1) \cup (1, \infty)$; Dec $(-\infty, -1) \cup (-1, 0)$; $x = 0$ is a minimum

13. a) 5 b) 8 c) $3f'(-3)$

14. a) 24 b) -8 c) 162