Deriva:

1. a) $y = 5x^4 - 2x^3 - 3x + 2$ b) $y = x^2.(3x - 2)$ c) $y = (x^2 + 3).(x^2 - x - 1)$

2. a) $y = 3x.(x^2 - x + 1).(5x - 3)$ b) $y = (x + 5)(x^3 - 1).(x^2 - x + 3)$

3. a) $y = \dfrac{x^2 - 3x + 4}{3x - 4}$ b) $y = \dfrac{3x^2 - 6}{x^2 + x + 1}$

4. a) $y = \dfrac{x^3 - 5x + 2}{x^2 - 3x}$ b) $y = \dfrac{x^2 - 3x + 11}{x^2 + x - 3}$

5. a) $y = (x^2 - 5x + 3)^4$ b) $y = (3x - 2)^5$

6. a) $y = (x^3 - x - 1)^4$ b) $y = (7x - 1)^4$

7. a) $y = \sqrt{x^2 + 5x - 4}$ b) $y = \sqrt[3]{x^2 - 5x}$

8. a) $y = \sqrt[4]{x^3 - x + 3}$ b) $y = \sqrt[3]{x^3 + x^2 - 7}$

9. a) $y = \ln(x^2 - 4x + 5)$ b) $y = \log_3(7x - 3)$ c) $y = \log(x^2 - 7x + 3)$

10. a) $y = \ln\dfrac{3x + 7}{5x - 2}$ b) $y = \ln(3x + 7)^4$ c) $y = \ln\sqrt[4]{(x^2 - 3x + 7)^3}$

11. a) $y = 5^{3x - 2}$ b) $y = e^{x^2 - 4x + 3}$

12. a) $y = a^{3x + 2}.(x^2 - x + 1)$ b) $y = 5^{x + 3}$

13. a) $y = \ln(x + \sqrt{x^2 + 9})$

14. a) $y = x.e^x$ b) $y = x^x + x^{\frac{1}{x}}$

15. a) $y = (x - \sqrt{1 - x^2})^2$ b) $y = x.\ln(1 - x^2)$

16. a) $y = \ln\dfrac{1 + \sqrt{x}}{1 - \sqrt{x}}$ b) $y = \dfrac{x}{2}.\sqrt{x^2 - a^2} - \dfrac{a^2}{2}.\ln(x + \sqrt{x^2 - a^2})$

17. a) $y = e^{\sqrt{x^2 - 3x + 1}}$ b) $y = \dfrac{x^2 + 1}{x^2 - 1}$

18. a) $y = e^{-2x+5} \cdot (x^2 - 4x + 5)$ b) $y = \dfrac{x}{\sqrt{x^2 - 2}}$

SOLUCIONES

1. a) $y' = 20x^3 - 6x^2 - 3$ b) $y' = x(9x-4)$ c) $y' = 4x^3 - 3x^2 + 4x - 3$

2. a) $y' = 3(20x^3 - 24x^2 + 16x - 3)$ b) $y' = 6x^5 + 20x^4 - 8x^3 + 42x^2 - 8x + 2$

3. a) $y' = \dfrac{x(3x-8)}{(3x-4)^2}$ b) $y' = \dfrac{3(x^2+6x+2)}{(x^2+x+1)^2}$

4. a) $y' = \dfrac{x^4 - 6x^3 + 5x^2 - 4x + 6}{x^2.(x-3)^2}$ b) $y' = \dfrac{2(2x^2-14x-1)}{(x^2+x-3)^2}$

5. a) $y' = 4(2x-5)(x^2-5x+3)^3$ b) $y' = 15(3x-2)^4$

6. a) $y' = 4(3x^2-1)(x^3-x-1)^3$ b) $y' = 28(7x-1)^3$

7. a) $y' = \dfrac{2x+5}{2.\sqrt{x^2+5x+4}}$ b) $y' = \dfrac{2x-5}{3.\sqrt[3]{(x^2-5x)^2}}$

8. a) $y' = \dfrac{3x^2-1}{4\sqrt[4]{(x^3-x+3)^3}}$ b) $y' = \dfrac{3x^2+2x}{3\sqrt[3]{(x^3+x^2-7)^2}}$

9. a) $y' = \dfrac{2x-4}{x^2-4x+5}$ b) $y' = \dfrac{7}{(7x-3)\ln 3}$ c) $y' = \dfrac{2x-7}{(x^2-7x+3)\ln 10}$

10. a) $y' = \dfrac{41}{(2-5x)(3x+7)}$ b) $y' = \dfrac{12}{(3x+7)}$ c) $y' = \dfrac{3(2x-3)}{4.(x^2-3x+7)}$

11. a) $y' = 3.5^{3x-2}.\ln 5$ b) $y' = (2x-4).e^{x^2-4x+3}$

12. a) $y' = a^{3x+2}[3(x^2-x+1)\ln a + 2x - 1]$ b) $y' = 5^{x+3}.\ln 5$

13. a) $y' = \dfrac{1}{\sqrt{x^2+9}}$

14. a) $y' = e^x.(x+1)$ b) $y' = x^x(\ln x + 1) + x\dfrac{1}{x}.\dfrac{1-\ln x}{x^2}$

15. a) $y' = \dfrac{4x^2-2}{\sqrt{1-x^2}}$ b) $y' = \ln(1-x^2) - \dfrac{2x^2}{1-x^2}$

16. a) $y' = \dfrac{1}{(1-x)\sqrt{x}}$ b) $y' = \sqrt{x^2-a^2}$

17. a) $y' = \dfrac{e^{\sqrt{x^2-3x+1}}\cdot(2x-3)}{2\sqrt{x^2-3x+1}}.$ b) $y' = \dfrac{-4x}{(x^2-1)^2}.$

18. a) $y' = -2e^{-2x+5}\cdot(3x^2-7x+7).$ b) $y' = \dfrac{-2}{\sqrt{(x^2-2)^3}}$