

## Cálculo Integral - Actividad 2

Resolver los siguientes ejercicios de forma analítica y comprobar los resultados con Python.

Hallar la derivada de las siguientes funciones:

1.  $y = x^3$

2.  $y = ax^4 - bx^2$

3.  $y = x^{\frac{4}{3}} + 5$

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

5.  $y = \sqrt{a^2 + x^2}$

6.  $y = (3x^2 + 2)\sqrt{1 + 5x^2}$

7.  $y = 3x^4 - 2x^2 + 8$

8.  $y = 4 - 3x - 2x^3$

9.  $s = at^5 - 5bt^3$

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

11.  $s = 2t^{\frac{4}{3}} - 3t^{\frac{2}{3}}$

12.  $y = \frac{a+bx+cx^2}{x}$

13.  $y = \frac{\sqrt{x}}{2} - \frac{2}{\sqrt{x}}$

14.  $s = \frac{a+bt+ct^2}{\sqrt{t}}$

15.  $r = \sqrt{1 - 2\theta}$

16.  $s = (2 - 3t^2)^3$

17.  $y = \frac{1}{\sqrt{a^2 - x^2}}$

18.  $y = \left(a - \frac{b}{x}\right)^2$

19.  $y = \left(a + \frac{b}{x^2}\right)^3$

20.  $y = \frac{a^2+x^2}{a^2-x^2}$

21.  $y = \frac{\sqrt{a^2+x^2}}{x}$

22.  $y = \sqrt{\frac{1-cx}{1+cx}}$

23.  $y = \sqrt{\frac{a^2+x^2}{a^2-x^2}}$

24.  $s = \sqrt[3]{\frac{2+3t}{2-3t}}$

25.  $y = \frac{b}{a}\sqrt{a^2 - x^2}$

26.  $y = \left(a^{\frac{2}{3}} - x^{\frac{2}{3}}\right)^{\frac{3}{2}}$

27.  $y = \frac{x}{\sqrt{a-bx}}$

28.  $r = \frac{\sqrt[3]{a+b\theta}}{\theta}$

29.  $y = x\sqrt[3]{2+3x}$

30.  $s = \sqrt{2t - \frac{1}{t^2}}$