

Ejercicios propuestos

Deriva las siguientes expresiones:

$$4.3-1 \quad y = \left(\frac{1}{x^3} + \frac{1}{2x^2} + \frac{1}{2x} \right) e^x$$

$$4.3-2 \quad y = \frac{\sqrt{x^2+1}+x}{\sqrt{x^2+1}-x} + \frac{\sqrt{x^2+1}-x}{\sqrt{x^2+1}+x}$$

$$4.3-3 \quad y = \frac{1+x}{\sqrt{x^2+1}} e^{\operatorname{arctag}x}$$

$$4.3-4 \quad y = x \operatorname{arctag}x - \frac{1}{2} \ln(1+x^2)$$

$$4.3-5 \quad y = \frac{1}{2}(x-4)\sqrt{8x-x^2} + 8 \operatorname{arcsen} \frac{x-4}{4}$$

$$4.3-6 \quad y = (1+x) \operatorname{arctag} \sqrt{x} - \sqrt{x} + 20$$

$$4.3-7 \quad y = x \ln(4x^2-1) - 2x - \frac{1}{2} \ln \frac{2x-1}{2x+1}$$

$$4.3-8 \quad y = \frac{1}{3} x^3 \operatorname{arctag}x - \frac{1}{6} x^2 + \frac{1}{6} \ln(x^2+1)$$

$$4.3-9 \quad y = 2 \operatorname{arctag} \left(\sqrt{\frac{1-\cos x}{1+\cos x}} \right)$$

$$4.3-10 \quad y = \arccos \left(\frac{1-x^2}{1+x^2} \right)$$

$$4.3-11 \quad y = \sec(x) \cdot \operatorname{tag}(x) + \ln(\sec(x) + \operatorname{tag}(x))$$

4.3-12 $y = (2x-3)\sqrt[3]{(x+1)^2}$

4.3-13 $y = \operatorname{arctag}\left(\frac{1-\operatorname{tag}x}{1+\operatorname{tag}x}\right)$

4.3-14 $y = \operatorname{arctag}\left(\frac{2a+x-a^2x}{1-2ax-a^2}\right)$

4.3-15 $y = (\operatorname{sen}x)^{\cos x}$

4.3-16 $y = \sqrt[x]{x}$

4.3-17 $y = \left(\frac{1+x}{1-x}\right)^{\frac{1-x}{1+x}}$

4.3-18 $y = a^{x^n}$

4.3-19 $y = 2e^{\sqrt{x}}\left(x^{3/2} - 3x + 6x^{1/2} - 6\right)$

4.3-20 $y = \operatorname{arcsen}\left(\frac{4}{e^{x^2} + 4e^{-x^2}}\right)$

4.3-21 $y = a^{\operatorname{sen}^2x}$

4.3-22 $y = 2^{3-x}$

4.3-23 $y = \frac{1}{3^{\operatorname{sen}x}}$

4.3-24 $y = \sqrt[3]{1+x^3} \cdot \sqrt{1-x^2}$

4.3-25 $y = \sqrt{a^2+x^2}(\ln x - 1) - \frac{a}{2} \ln \frac{\sqrt{a^2+x^2}-a}{\sqrt{a^2+x^2}+a}$

4.3-26 $y = \ln \frac{\sqrt[3]{3x^2+7}}{x^2\sqrt{2x+5}}$

4.3-27 $y = \ln \sqrt{\frac{\sqrt{1-\cos x} + \sqrt{1+\cos x}}{\sqrt{1-\cos x} - 3\sqrt{1+\cos x}}}$

4.3-28 $y = x - 10 + 4\sqrt{x-1} + 2\ln(x - \sqrt{x-1}) - \frac{4}{\sqrt{3}} \operatorname{arctag}\left(\frac{2\sqrt{x-1}-1}{\sqrt{3}}\right)$

4.3-29 $y = (2x-3)\sqrt[3]{(x+1)^2}$

4.3-30 $y = \ln \frac{x}{\sqrt{1+x^2}} - \frac{\operatorname{arctag}x}{x}$

4.3-31 $y = \sqrt{2x+1} \operatorname{tag}(\sqrt{2x+1}) + \ln(\cos \sqrt{2x+1})$

4.3-32 $y = e^{-x} \frac{\operatorname{sen}3x + 3\cos 3x}{10}$