8/2/2019

130 $y = 4x + 2\sqrt{x} - 3$ CALCOLARE y'

$y = 4x + 2x^{\frac{1}{2}} - 3$

$y' = 4 + \cancel{2} \cdot \frac{1}{\cancel{2}} x^{\frac{1}{2}-1} = 4 + x^{-\frac{1}{2}} = 4 + \frac{1}{x^{\frac{1}{2}}} =$

$= 4 + \frac{1}{\sqrt{x}}$

159 $y = \frac{x^2}{2} - \frac{2}{x^2}$ $\left[y' = x + \frac{4}{x^3}\right]$

$y = \frac{x^2}{2} - 2x^{-2}$

$y' = \frac{\cancel{2}x}{\cancel{2}} - 2(-2)x^{-3} = x + 4x^{-3}$ (−2 − 1 → −3)

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

161 $y = \dfrac{2}{x^4} - \dfrac{3}{x^3} - \dfrac{1}{x^2}$

162 $y = 2x^{\frac{3}{2}} - 4x^{-\frac{1}{2}}$

161 $y = 2x^{-4} - 3x^{-3} - x^{-2}$

$y' = -8x^{-5} + 9x^{-4} + 2x^{-3} = -\dfrac{8}{x^5} + \dfrac{9}{x^4} + \dfrac{2}{x^3}$

162 $y' = \cancel{2} \cdot \dfrac{3}{\cancel{2}} x^{\frac{3}{2}-1} - 4\left(-\dfrac{1}{2}\right) x^{-\frac{1}{2}-1} =$

$= 3x^{\frac{1}{2}} + 2x^{-\frac{3}{2}}$ $\qquad y' = 3x^{\frac{1}{2}} + 2x^{-\frac{3}{2}}$

$y' = 3\sqrt{x} + \dfrac{2}{\sqrt{x^3}}$

180 $y = \sqrt[4]{x^3} + 3x - 2 = x^{\frac{3}{4}} + 3x - 2$

$y' = \dfrac{3}{4} x^{\frac{3}{4}-1} + 3 = \dfrac{3}{4} x^{-\frac{1}{4}} + 3 =$

$= \dfrac{3}{4} \cdot \dfrac{1}{x^{\frac{1}{4}}} + 3 = \dfrac{3}{4\sqrt[4]{x}} + 3$

$x^{-a} = \dfrac{1}{x^a}$

183 $y = \dfrac{x}{\sqrt{x}} + \dfrac{5}{2} \cdot \dfrac{1}{\sqrt[5]{x^2}} =$

$= x \cdot x^{-\frac{1}{2}} + \dfrac{5}{2} \cdot x^{-\frac{2}{5}} = x^{\frac{1}{2}} + \dfrac{5}{2} x^{-\frac{2}{5}}$

$y' = \dfrac{1}{2} x^{\frac{1}{2}-1} + \dfrac{5}{2}\left(-\dfrac{2}{5}\right) x^{-\frac{2}{5}-1} =$

$= \dfrac{1}{2} x^{-\frac{1}{2}} - x^{-\frac{7}{5}} = \dfrac{1}{2\sqrt{x}} - \dfrac{1}{\sqrt[5]{x^7}} = \dfrac{1}{2\sqrt{x}} - \dfrac{1}{x\sqrt[5]{x^2}}$

184 $y = 2\sqrt{x} - \ln\dfrac{1}{x} = 2x^{\frac{1}{2}} - \ln x^{-1} =$

$= 2x^{\frac{1}{2}} - (-1) \cdot \ln x = 2x^{\frac{1}{2}} + \ln x$

$y' = 2 \cdot \dfrac{1}{2} x^{\frac{1}{2}-1} + \dfrac{1}{x} = x^{-\frac{1}{2}} + \dfrac{1}{x} = \dfrac{1}{\sqrt{x}} + \dfrac{1}{x}$