Corso di laurea in Scienze Biologiche
Laurea Triennale
Matematica, Corso A (lettere A-M), Prof. E. Mascolo

ESERCITAZIONE 6

(1) $y' = -xy, \qquad (y(x) = Ce^{-\frac{x^2}{2}})$

(2) $y' = 1 + y^2, \qquad (\arctan y(x) = x + C)$

(3) $y' = xy^2, \qquad (y = \frac{-2}{x^2+C})$

(4) $y' = y \log y, \qquad (\log|\log y| = x + C)$

(5) $y' = x\,(\cos y)^2, \qquad (y = \arctan(\frac{x^2}{2} + C))$

(6) $y' = \frac{y \log y}{x}, \qquad (\log|\log y| = \log|x| + C)$

(7) $y' = 2\,x\,y^2, \quad y(0) = 1, \qquad (y(x) = -\frac{1}{x^2+C})$

(8) $y' = e^x\,(\cos y)^2, \quad y(0) = \frac{5}{4}\pi, \qquad (y(x) = \arctan e^x + \pi)$

(9) $y' = \frac{1}{x}\sqrt{1-y^2}, y(1) = 0, \quad (y(x) = \sin(\log|x|))$

(10) $xy' = -y^2 \log x - 2y, \qquad (y(x) = (cx^2 - \frac{\log x}{2} - \frac{1}{4})^{-1})$

(11) $y' = 4\,x\,y - 4\,x^3\sqrt{y}, \qquad (y(x) = (1 + x^2 + C\,e^{x^2})^2)$

(12) $\frac{y'}{y^2} - \frac{x}{y} = x^3, \qquad (y(x) = (Ce^{\frac{x^2}{2}} + (2 - x^2))^{-1})$

(13) $y' + y = 2\,x\,e^{-x}, \qquad (y(x) = e^{-x}\,(x^2 + C))$

(14) $y' = -\frac{1}{3x} - \frac{1}{x}\,e^{\sqrt{1+x}}\,y^{-2}, \quad (y(x) = (3xe^{\sqrt{1+x}}(\sqrt{1+x} - 1 + C))^{\frac{1}{3}})$

(15) $y' = -\frac{1}{x}\,y + \frac{1}{2}\arctan x\,y^3, \qquad (y(x) = ...)$