

## Miscelánea

Resolver las siguientes ecuaciones diferenciales, algunas de las cuales pueden resolverse de varias formas:

1.  $(y^2 + xy^2)y' + x^2 - yx^2 = 0.$

**d** 1

2.  $(1 - 2x^2 - 2y)y' = 4x^3 + 4xy.$

**d** 2

3.  $(x + ye^{\frac{y}{x}}) dx - xe^{\frac{y}{x}} dy = 0, \quad \text{con } y(1) = 0.$

**d** 3

4.  $y \frac{dx}{dy} = e^{-3y} - (3y + 1)x.$

**d** 4

5.  $(x + \text{sen } x + \text{sen } y) dx + (\cos y) dy = 0.$

**d** 5

6.  $(3x^2y + e^y) dx + (x^3 + xe^y - 3y^2) dy = 0.$

**d** 6

7.  $(1 + y^2)(e^{2x} dx - e^y dy) - (1 + y) dy = 0.$

**d** 7

8.  $(1 - \cos x)y' = \tan x - 2y \text{sen } x.$

**d** 8

9.  $2xy \ln y dx + (x^2 + y^2 \sqrt{y^2 + 1}) dy = 0.$

**d** 9

10.  $(x + y) dy + (x - y) dx = 0.$

**d** 10

11.  $x^2y' = 3y^4 + 2xy, \quad \text{con } y(1) = \frac{1}{2}.$

**d** 11

12.  $(x^4 \ln x - 2xy^3) dx + (3x^2y^2) dy = 0.$

**d** 12

13.  $(\cos x + \tan y \cos x) dx + (\text{sen } x - 1) \sec^2 y dy = 0.$

**d** 13

14.  $(e^x \text{sen } y - 2y \text{sen } x - \ln x) dx + (e^x \cos y + 2 \cos x - \ln y) dy = 0.$

**d** 14

15.  $(x + 1)y' + (x + 2)y = 2xe^{-x}$ .

**d** 15

16.  $(y^3 + x^2y) dy + (xy^2 + x^3) dx = 0$ .

**d** 16

17.  $xy dx - x^2 dy = y\sqrt{x^2 + y^2} dy$ , con  $y(1) = 1$ .

**d** 17

18.  $(ye^{xy} \cos 2x - 2e^{xy} \operatorname{sen} 2x + 2x) dx + (xe^{xy} \cos 2x - 3) dy = 0$ .

**d** 18

19.  $(x^2 + y^2) dy + (3x^2y + 2xy + y^3) dx = 0$ .

**d** 19

20.  $(xy - 2x + 4y - 8) dy = (xy + 3x - y - 3) dx$ .

**d** 20

21.  $(y \tan x - \cos^2 x) dx + dy = 0$ , con  $y(0) = -1$ .

**d** 21

22.  $dy = (y - y^2) dx$ .

**d** 22

23.  $xy(1 + xy^2)y' = 1$ , con  $y(1) = 0$ .

**d** 23