Clasificar las siguientes ecuaciones diferenciales:

1. $\frac{d^3x}{dy^3}+\frac{d^2x}{dy^2}-2\frac{dx}{dy}=0$
2. $2x^5y'=y\left(3x^4+y^2\right.$
3. $x(y')^2-3yy'+9x^2=0$
4. $3x(xy-2)dx+\left(x^3+2y\right)dy=0$
5. $\left(D^2-9\right)y=3e^x+x-\operatorname{sen}4x$
6. $y''+9y=81x^2+14\cos 4x$
7. $x\frac{dy}{dx}+\left(\frac{dy}{dx}\right)^3-y=0$
8. $x^2dx+y(x-1)dy=0$
9. $y(x+y)dx+(x+2y-1)dy=0$
10. $y\left(6y^2-x-1\right)dx+2x\,dy=0$
11. $y'-2xy=x$
12. $3\left(3x^2+y^2\right)dx-2xy\,dy=0$
13. $6y^2\,dx-x\left(2x^3+y\right)dy=0$
14. $\left(2x^3-xy^2-2y+3\right)dx-\left(x^2y+2x\right)dy=0$
15. $xy''-(y')^3-y'=0$
16. $yy''+(y')^2+1=0$
17. $(x+y+1)dx+(x+3y+2)dy=0$
18. $xy\left(\frac{dy}{dx}\right)^2+(x+y)\frac{dy}{dx}+1=0$
19. $2ay''+(y')^3=0$, con $a\in\mathbb{R}$
20. $y'=\sec x-y\,\operatorname{tg}x$