A curve is an OT (Orthogonal trajectory) if it intersects every member of the family perpendicularly.

Ex. yy’ + x = 0

Y dy/dx = -xdx

½ y^2 = -1/2 x^2 + (fancy C)

Y^2 = -x^2 + 2 (fancy C), y = sqrt(-x^2 + C)

|y| = e^(ln|x| + C)

|y| = e^C \* |x|

Homogeneous equations

-Like ODE

y’ = (y/x)^n, ex. y’ = (3 + 2y/x)

however, y’ = x + y/x is not.

Linear equations

El Physico

Coulomb’s law (like gravity, but stronger, and can be repulsive)

Triboelectric effect (rubbing things together)

Charge is quantized and conserved.

Mathematico

Linear equations

Do math homework.

Bernoulli equations:

A(x)y’ + b(x)y = c(x)y^(alpha), where alpha is a real number.