\[ \ddot{x} = -k \dot{x} \]
\[ \ddot{y} = -g - k \dot{y} \]

PROJECTILE MOTION with linear drag

- How wrong was Aristotle?!

\[ y = \left( \frac{v}{u} + \frac{g}{ku} \right)x + \frac{g}{k^2} \ln \left( 1 - \frac{kx}{u} \right); \]

\[ g = 1 \]
\[ u = \dot{x}(0) = 1 \]
\[ v = \dot{y}(0) = 3 \]