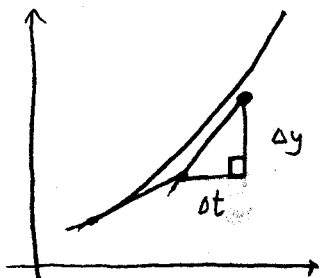


Week 2 Summary:

- Euler's method: $y' = f(t, y)$, $y(t_0) = y_0$, step-size h .



Method: $(t_{k+1}, y_{k+1}) = (\underbrace{t_k + h}_{\Delta t}, \underbrace{y_k + h \cdot f(t_k, y_k)}_{\Delta y})$

- Solving ODEs by separation of variables
- Difference between the general solution and a particular solution, given initial conditions.
- Modeling falling objects with air resistance (decay \rightarrow value ODE)
- An ODE is linear if $y'(t) = a(t)y(t) + f(t)$
and homogeneous if $y'(t) = a(t)y(t)$.