

Separable Equations

Now, we want to actually try to solve these equations. The first type we want to look at are ones that can be solved by direct integration. We've seen some examples of this already.

$$\frac{dy}{dt} = t^2$$

So, we can solve equations this way if the right-hand side is only a function of t . What about more complicated functions? This comes back to the idea of the differential from Calculus 1.

Definition. A differential equation $\frac{dy}{dt} = f(t, y)$ is said to be *separable* if

Example. Find the general solution of the differential equation $\frac{dy}{dt} = yt$.