

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\frac{dA}{dt} = kA$ with $k < 0$ (or $\frac{dA}{dt} = -kA$, $k > 0$)

2.2

- $\frac{dV}{dt} = -3$

2.3

- $\frac{dN}{dt} = kN$

3.1 C

- proportional to y means $\frac{dy}{dt} = ky$

3.2

(a)

- $\frac{dT}{dt} = k(T - 20)$

(b)

- $k < 0$ — the coffee is cooling, so its temperature decreases

3.3

- $\frac{dB}{dt} = 0.04B + 2000$