

1. Find explicit solutions to the following initial value problems.

(a) $\frac{dq}{dr} = 3.2, \quad q(2) = 8.9$

(b) $\frac{dh}{ds} = \ln(10), \quad h(0) = 8$

(c) $\frac{dq}{dt} = -0.4q, \quad q(0) = 30$

(d) $\frac{dw}{dz} = 0.6z, \quad w(0) = 40$

(e) $\frac{dv}{dq} = v^2, \quad v(8) = \frac{1}{3}$

(f) $\frac{dy}{dt} = \sqrt{y}, \quad y(0) = 10$

(g) $\frac{dy}{dt} = 6t^2 + 5, \quad y(0) = 8$

(h) $\frac{dy}{dx} = \frac{2x - 5}{3y^2}, \quad y(0) = 2$

(i) $\frac{dy}{dt} = \frac{2t}{3y^2}, \quad y(0) = 5$