

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

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

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

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

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

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

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