

HW 6.2 and 6.3

6.2

Solve the differential equation.

1. $\frac{dy}{dx} = x + 2$

2. $\frac{dy}{dx} = 4 - x$

3. $\frac{dy}{dx} = y + 2$

4. $\frac{dy}{dx} = 4 - y$

5. $y' = \frac{5x}{y}$

6. $y' = \frac{\sqrt{x}}{3y}$

7. $y' = \sqrt{xy}$

8. $y' = x(1 + y)$

9. $(1 + x^2)y' - 2xy = 0$

10. $xy + y' = 100x$

6.3

Find the general solution of the differential equation.

3. $\frac{dr}{ds} = 0.05r$

9. $\sqrt{1 - 4x^2}y' = x$

6. $xy' = y$

12. $4yy' - 3e^x = 0$

Find the particular solution that satisfies the initial condition.

15. $y(x + 1) + y' = 0, \quad y(-2) = 1$

18. $y\sqrt{1 - x^2}y' - x\sqrt{1 - y^2} = 0, \quad y(0) = 1$

19. $\frac{du}{dv} = uv \sin v^2, \quad u(0) = 1$

Find an equation of the graph that passes through the point and has the given slope.

24. $(8, 2), \quad y' = \frac{2y}{3x}$