AP Calculus Name: _____

6.2 Worksheet A | Separable Differential Equations

1a. Solve the differential equation $y' = x + 7$. b. Find the particular solution that passes through (4, 20).

2a. Solve the differential equation $y' = y - 4$. b. Find the particular solution that passes through (0, 1).

3a. Solve the differential equation $y' = 2x(y + 1)$. b. Find the particular solution that passes through (0, 8).

4a. $y = Cx^4$ 4b. $y = -\frac{1}{8}x^4$ 5a. $y^2 = 2x^2 + 6x + C$ 5b. $y = -\sqrt{2x^2 + 6x + 5}$

6a. $y^2 = 5 \ln|x + 2| + C$ 6b. $y = \sqrt{5 \ln|x + 2| + 9}$

4a. Solve the differential equation $y' = \frac{4y}{x}$. b. Find the particular solution that passes through $(2, -2)$.

5a. Solve the differential equation $y' = \frac{2x+3}{y}$. b. Find the particular solution $y = f(x)$ that passes through $(2, -5)$.

6a. Solve the differential equation $y' = \frac{5}{2y(x+2)}$. b. Find the particular solution $y = f(x)$ that passes through $(-3, 3)$.

1a. $y = \frac{1}{2}x^2 + 7x + C$ 1b. $y = \frac{1}{2}x^2 + 7x - 16$ 2a. $y = Ce^x + 4$ 2b. $y = -3e^x + 4$

3a. $y = Ce^{x^2} - 1$ 3b. $y = 9e^{x^2} - 1$