Calculus   Name_____ ID: 1

Assignment
Date_____ Period_____

For each problem, find the particular solution of the differential equation that satisfies the initial condition.

1) $y' = \dfrac{2w}{y^2},\ y(1) = \sqrt[3]{6}$

2) $y' = 4wy^2,\ y(-2) = -\dfrac{1}{10}$

3) $y' = \dfrac{2t}{e^{2y}},\ y(-3) = \dfrac{\ln 19}{2}$

4) $y' = \dfrac{1}{\sec^2 y},\ y(3) = 0$

5) $y' = 4ty^2,\ y(2) = -\dfrac{1}{10}$

6) $y' = 2w\sqrt{y},\ y(-1) = \dfrac{9}{4}$

7) $y' = 5e^{w-y}$, $y(1) = \ln(5e + 2)$

8) $y' = \dfrac{2x^3}{y^2}$, $y(1) = \dfrac{\sqrt[3]{36}}{2}$

9) $y' = r\sqrt{y}$, $y(1) = \dfrac{25}{16}$

10) $y' = 4sy^2$, $y(1) = -\dfrac{1}{4}$

11) $y' = 3e^{r-y}$, $y(1) = \ln(3e + 2)$

12) $y' = 2sy^2$, $y(2) = -\dfrac{1}{7}$

Answers to Assignment (ID: 1)

1) $\dfrac{y^3}{3} = w^2 + 1$

$y = \sqrt[3]{3w^2 + 3}$

2) $-\dfrac{1}{y} = 2w^2 + 2$

$y = -\dfrac{1}{2w^2 + 2}$

3) $\dfrac{e^{2y}}{2} = t^2 + \dfrac{1}{2}$

$y = \dfrac{\ln\left(2t^2 + 1\right)}{2}$

4) $\tan y = t - 3$

$y = \tan^{-1}\left(t - 3\right)$

5) $-\dfrac{1}{y} = 2t^2 + 2$

$y = -\dfrac{1}{2t^2 + 2}$

6) $2\sqrt{y} = w^2 + 2$

$y = \left(\dfrac{w^2}{2} + 1\right)^2$

7) $e^y = 5e^w + 2$

$y = \ln\left(5e^w + 2\right)$

8) $\dfrac{y^3}{3} = \dfrac{x^4}{2} + 1$

$y = \sqrt[3]{\dfrac{3x^4}{2} + 3}$

9) $2\sqrt{y} = \dfrac{r^2}{2} + 2$

$y = \left(\dfrac{r^2}{4} + 1\right)^2$

10) $-\dfrac{1}{y} = 2s^2 + 2$

$y = -\dfrac{1}{2s^2 + 2}$

11) $e^y = 3e^r + 2$

$y = \ln\left(3e^r + 2\right)$

12) $-\dfrac{1}{y} = s^2 + 3$

$y = -\dfrac{1}{s^2 + 3}$