Symbolab

ODE

First Order ODE

Linear

1. $y' + y = e^t + 11$

2. $y' \cos(x) + y\sin(x) = 1$

3. $y' \cos(x) = y\sin(x) + \sin(2x)$

4. $y' - 2xy = e^{x^2}$

5. $y' + y = (x+1)^2,\ y(0) = 0$

6. $2y + (x+1)\frac{dy}{dx} = 3x + 3,\ y(0) = 3$

7. $y' - 3y = 3e^{4t},\ y(0) = 5$

8. $y' = \frac{1}{3}y - e^{-4x},\ y(0) = 7$

9. $y' = x + y,\ y(0) = 1$

10. $x\frac{dy}{dx} + y = x,\ y(1) = 1$

Symbolab

Answers

ODE

First Order ODE

Linear

1. $y = \frac{e^{t}}{2} + 11 + \frac{c_1}{e^{t}}$

2. $y = \frac{\tan\left(x\right)}{\sec\left(x\right)} + \frac{c_1}{\sec\left(x\right)}$

3. $y = -\frac{\cos\left(2x\right)}{2\cos\left(x\right)} + \frac{c_1}{\cos\left(x\right)}$

4. $y = e^{x^2}x + c_1 e^{x^2}$

5. $y = x^2 + 1 - \frac{1}{e^{x}}$

6. $y = \frac{x^3}{x^2 + 2x + 1} + \frac{3x^2}{x^2 + 2x + 1} + \frac{3x}{x^2 + 2x + 1} + \frac{3}{x^2 + 2x + 1}$

7. $y = 3e^{4t} + 2e^{3t}$

8. $y = \frac{3}{13e^{4x}} + \frac{88}{13}e^{\frac{x}{3}}$

9. $y = -x - 1 + 2e^{x}$

10. $y = \frac{x}{2} + \frac{1}{2x}$