

<p>1. Find the general solution to $(y-1)\frac{dy}{dx} = 1$.</p>	<p>2. Find the general solution to $\frac{dy}{dx} = 1 - y$.</p>
<p>3. Solve $\frac{dy}{dx} = \sqrt{1-2y^2}$ for y, given $y = \frac{1}{\sqrt{2}}$ when $x = \frac{\pi}{2\sqrt{2}}$.</p>	<p>4. Find the solution to $\frac{dy}{dx} = \sqrt{1 + \frac{1}{y^2}}$, where $y = -\sqrt{3}$ when $x = 2$.</p>
<p>5. Find the general solution to $\frac{dy}{dx} - y^2 + 2y - 2 = 0$.</p>	<p>6. Find the general solution to $(y^2 - 2y + 1)\frac{dy}{dx} = 1$.</p>
<p>7. Find the general solution to $\frac{dy}{dx} = y \log_e y$.</p>	<p>8. Given $\frac{dy}{dx} = \frac{\sqrt{1-y}}{y}$ and $y = 1$ when $x = 0$. Find x when $y = 0$.</p>
<p>9. Use Euler's method with step size of 0.1 to find the approximate solution to $\frac{dy}{dx} = x + y$ at $x = 0.3$, given $y(0) = 1$.</p>	<p>10. Use Euler's method with step size of 0.1 to find the approximate solution to $\frac{dy}{dx} = x^2 + y^2$ at $x = 0.2$ if $y(0) = 1$.</p>
<p>11. Use Euler's method with step size of 0.1 to find the approximate solution to $x\frac{dy}{dx} = e^x$ at $x = 1.2$, given $y(1) = 2$.</p>	<p>Numerical, algebraic and worded answers.</p> <ol style="list-style-type: none"> 1. $y = 1 \pm \sqrt{2x+c}$ 2. $y = 1 \pm ke^x$ 3. $y = 1/\sqrt{2} \sin(x\sqrt{2})$, $x \in [-\pi/(2\sqrt{2}), \pi/(2\sqrt{2})]$ 4. $y = -\sqrt{x^2 - 1}$ 5. $y = \tan(x+c) + 1$ 6. $y = (3x+c)^{1/3} + 1$ 7. $e^{\pm e^x - c}$ 8. $-4/3$ 9. ≈ 1.362 10. ≈ 1.222 11. ≈ 2.545