

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