

C12 - 5.0 - Differentials/Slope/Solid Fields

$$\frac{dy}{dx} = 2x + 1 \quad (2,0)$$

$$dy = (2x + 1)dx$$

$$\int dy = \int (2x + 1) dx$$

$$y = x^2 + x + C$$

$$0 = (2)^2 + (2) + C$$

$$C = -6$$

$$y = x^2 + x - 6$$

Isolate Variables
Integrate both sides
Initial Condition

$$\frac{dy}{dx} = -\frac{x}{y} \quad (0,2)$$

$$ydy = -xdx$$

$$\int ydy = \int -xdx$$

$$\frac{y^2}{2} = -\frac{x^2}{2} + C$$

$$\frac{2^2}{2} = -\frac{0^2}{2} + C$$

$$C = 4$$

$$x^2 + y^2 = 4$$

x	y	$-\frac{x}{y}$
1	1	-1
1	0	und
1	-1	1
1	2	$-\frac{1}{2}$
0	-2	0
2	0	und

