

1. Given: $u = -u$, $v = 2y$ and $w = 3 - 2$

~~We can write~~

$$\cancel{\frac{du}{du} + \frac{dv}{dy} + \frac{dw}{dz} = 0}$$

$$\cancel{\frac{du}{du} = -1 \quad \frac{dv}{dy} = 2 \quad \frac{dw}{dz} = -1}$$

$$\frac{du}{u} = \frac{dy}{v} = \frac{dz}{w}$$

$$\frac{dy}{du} = \frac{2y}{-u}$$

$$2 \ln y = - \ln \frac{1}{u}$$

$$\sqrt{y} = \frac{1}{u} + C \quad C = 0$$

$$\sqrt{y} = \frac{1}{u}$$

$$\cancel{3-2} \quad \frac{1}{2} \ln y = - \ln |3-2|$$

$$\sqrt{y} = \cancel{(3-2)} \frac{1}{3-2} + C \quad C = 0$$
$$\Rightarrow \sqrt{y} = \frac{1}{3-2}$$

$$\Rightarrow \sqrt{y} = \frac{1}{u} = \frac{1}{3-2}$$

$y = \frac{1}{u^2} = \frac{1}{(3-2)^2} \cdot 1 = 1$ is the streamline passing through

$(1, 1, 2)$.