



DE1

$$\frac{dy}{dx} = x - y$$

DE2

$$\frac{dy}{dx} = \frac{x}{y}$$

DE3

$$\frac{dy}{dx} = y - x$$

DE4

$$\frac{dy}{dx} = -\frac{x}{y}$$

DE5

$$\frac{dy}{dx} = x$$

DE6

$$\frac{dy}{dx} = -\frac{y}{x}$$

DE7

$$\frac{dy}{dx} = \frac{y}{2}$$

DE8

$$\frac{dy}{dx} = 0.25y(4 - y)$$

DE9

$$\frac{dy}{dx} = 2 - y$$

DE10

$$\frac{dy}{dx} = x + y$$

C1

Substituting into the differential equation verifies that $y = \sqrt{4 - x^2}$ is a solution.

C2

The solution curve that passes through the point $(0, -1)$ is the line $y = x - 1$.

C3

The solution curves are hyperbolas, and there are no equilibrium solutions.

C4

The solution curve that passes through the point $(-1, 0)$ is the line $y = -x - 1$.

C5

The solution curve that passes through the point $(1, 1)$ has a local maximum at $(1, 1)$.

C6

There is exactly one equilibrium solution and it is unstable.

C7

For $0 < y < 4$, the solution curves are logistic and have two horizontal asymptotes.

C8

The equation and the slope field both show that this is an autonomous differential equation.

$$\lim_{x \rightarrow \infty} y = 2.$$

C9

The solution curves have a vertical asymptote at $x = 0$.

C10

The solution curves are parabolas.