

Solutions

Each answer shows the steps, then the **result**.

2.1

- $y = 5$

2.2

- $y = 3$

2.3

- Away — at $y = 6$, $\frac{dy}{dx} = 1 > 0$, so y increases, moving away from 5

3.1 A

- an equilibrium has $\frac{dy}{dx} = 0$

3.2

(a)

- $y = 2$

(b)

- Decreases — at $y = 5$, $\frac{dy}{dx} = 2 - 5 = -3 < 0$

(c)

- $y \rightarrow 2$

3.3

- Equilibria $y = 0$ and $y = 4$; a solution starting at $y = 1$ has $\frac{dy}{dx} = 1(3) > 0$, so it rises toward $y = 4$