Practice worksheet | Rates of change and differential equations

Slope fields

Name: _____ Date: _____

6 questions | 12 marks

1. Find slopes for $y' = xy$ at $(1, 2)$, $(2, -1)$ and $(0, 3)$. [2 marks]

2. Where are the slopes zero for $y' = x + y$? [2 marks]

3. For $y' = y(4 - y)$, identify constant equilibria. [2 marks]

4. For $y' = y(4 - y)$, state slope signs in $y < 0$, $0 < y < 4$ and $y > 4$. [2 marks]

5. For $y' = x^2$, what do segments at $(2, 1)$ and $(2, 5)$ have in common? [2 marks]

6. For $y' = -2y$, describe whether a positive solution increases or decreases and whether it crosses the equilibrium. [2 marks]