Practice worksheet | Rates of change and differential equations

Separation of variables

Name: _____ Date: _____

6 questions | 12 marks

1. Solve $y' = 4xy$ with $y(0) = 2$. [2 marks]

2. Solve $y' = \frac{x}{y}$ with $y(0) = 3$. [2 marks]

3. Solve $y' = (1 + y^2)$ with $y(0) = 0$. State the interval around zero. [2 marks]

4. Find all constant solutions of $y' = x(y-2)(y+1)$. [2 marks]

5. Solve $y' = -y^2$ with $y(0) = 1$. [2 marks]

6. Solve $y' = \frac{y}{x}$ with $y(1) = -2$, on $x > 0$. [2 marks]