Practice worksheet | Integration

Initial-value problems

Name: _____ Date: _____

6 questions | 18 marks

1. $F'(x) = 6x$ and $F(0) = 3$. Find F. [3 marks]

2. $y' = 4x^3$ and $y(1) = 7$. Find y. [3 marks]

3. $f'(x) = \cos x$ and $f(\frac{\pi}{2}) = 4$. Find f. [3 marks]

4. $g'(x) = \frac{2}{x}$ for $x > 0$ and $g(1) = 5$. Find g. [3 marks]

5. A particle has acceleration $a(t) = 6t$ m/s² and initial velocity 2 m/s. Find its velocity at $t = 3$ s. [3 marks]

6. A quantity satisfies $N'(t) = 3e^t$ and $N(0) = 8$. Find $N(\ln 2)$. [3 marks]