Practice worksheet | Differentiation and applications

Review of derivatives and polynomial rules

Name: _____ Date: _____

6 questions | 15 marks

1. Differentiate $3x^5 - 2x^2 + 9$. [2 marks]

2. Find the gradient of $y = x^3 - 4x$ at $x = -1$. [2 marks]

3. Differentiate $x^{-2} + 4x^{\frac{1}{2}}$ and state a real domain for the derivative. [3 marks]

4. Find a tangent equation to $y = 2x^2 - x$ at $x = 1$. [3 marks]

5. A water-volume model is $V(t) = 50 + 6t - t^2$ litres, for $0 \le t \le 3$ seconds. Find and interpret $V'(2)$. [3 marks]

6. A student says the derivative of $5x^3$ is $5x^2$. Explain the error and correct it. [2 marks]