Practice worksheet | Introduction to calculus

First-derivative graph analysis

Name: _____ Date: _____

6 questions | 24 marks

1. List intercepts, stationary point and monotonic intervals of $f(x) = x^2 - 4x + 3$. [5 marks]

2. Analyse $f(x) = x^3 - 3x^2$. [5 marks]

3. A differentiable function has derivative zero at x=−2 and x=1. Its derivative is positive for x<−2, negative for −2<x<1, and positive for x>1. State the stationary types. [3 marks]

4. Find roots and stationary points of $g(x) = x^3 - 3x$. [5 marks]

5. A straight-line function has $f'(x) = 2$ and $f(0) = -3$. Find f. [3 marks]

6. Why can the derivative alone not determine vertical position? [3 marks]