

SAMPLE PAPER 2: PAPER 1

QUESTION 5 (25 MARKS)

Question 5 (a)

$$f(x) = x^3 - 6x^2 + 11x - 6$$

$$f(1) = (1)^3 - 6(1)^2 + 11(1) - 6 = 1 - 6 + 11 - 6 = 0$$

$$f(2) = (2)^3 - 6(2)^2 + 11(2) - 6 = 8 - 24 + 22 - 6 = 0$$

$$f(3) = (3)^3 - 6(3)^2 + 11(3) - 6 = 27 - 54 + 33 - 6 = 0$$

Question 5 (b)

x	0.5	1.0	1.5	2.0	2.5	3.0	3.5
$y = f(x)$	-1.875	0	0.375	0	-0.375	0	1.875

Question 5 (c) & (d)

$g(x)$ is a straight line. Find two points on this line so it can be drawn.

$$g(x) = x - 2$$

$$g(1) = 1 - 2 = -1$$

$$g(2) = 2 - 2 = 0$$

Question 5 (e)

$$f(x) = g(x)$$

$$x^3 - 6x^2 + 11x - 6 = x - 2$$

$$x^3 - 6x^2 + 10x - 4 = 0$$

Find solutions at which the two functions intersect.

$$x = 0.6, 2, 3.4$$

