

Spring 2021
Free Response
Chapter 05.05 Spline interpolation

1) The following incomplete y vs. x data is given

x	1	2	3	5	6
y	4.75	4	5.25	19.75	?????

The data is fit by quadratic spline interpolants given by

$$f(x) = ax + 5.5, 1 \leq x \leq 2$$

$$f(x) = 2x^2 - 8.75x + 13.5, 2 \leq x \leq 3$$

$$f(x) = bx^2 + cx + d, 3 \leq x \leq 5$$

$$f(x) = ex^2 + fx + g, 5 \leq x \leq 6$$

where a, b, c, d, e, f, g are constants. What is the value of c ? Show all your steps clearly.