

11 The three functions, f , g and h , are defined as

$$f : x \mapsto 4x^3 + 4x^2 - 5x - 3$$

$$g : x \mapsto \frac{x-7}{3-2x}$$

$$h : x \mapsto 2x + 1$$

(a) Write down the value of x that must be excluded from any domain of g

(1)

(b) Find $g(2)$

(1)

(c) Express the inverse function g^{-1} in the form $g^{-1}(x) = \dots$

(3)

(d) Solve the equation $g(x) = h(x)$

(4)

(e) (i) Use the factor theorem to show that $(2x + 3)$ is a factor of $f(x)$

(2)

(ii) Hence solve the equation $f(x) = 0$

Show clear algebraic working.

(4)



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(Total for Question 11 is 15 marks)

TOTAL FOR PAPER IS 100 MARKS

