7 The function g is defined as

$$g: x \mapsto \frac{10}{2x - 3}$$

(a) Find the value of x that must be excluded from the domain of g

(1)

(b) Solve $g(x) = 5$

(3)

The function f is defined as

$$f: x \mapsto 3x^2 + 9x - 7 \quad \text{for} \quad x > -\frac{3}{2}$$

(c) Find $f\left(-\frac{1}{2}\right)$

(2)

(d) Express the inverse function f^{-1} in the form $f^{-1}: x \mapsto ...$

(4)

$$\left[\text{Solutions of } ax^2 + bx + c = 0 \text{ are } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}\right]$$

Question 7 continued

(Total for Question 7 is 10 marks)