8 The function f is such that

$$f: x \mapsto 1 - \frac{1}{x} \quad \text{where } x \neq 0$$

(a) State a value that cannot be in the range of the function f

(1)

(b) Solve $16f(x) = x + 8$

(4)

(c) Show that $ff(x) = f^{-1}(x)$

(6)

(d) State a value that cannot be in the domain of the function f^{-1}

(1)

(e) Evaluate $fff(2)$

(1)

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

Question 8 continued

Question 8 continued

Question 8 continued

(Total for Question 8 is 13 marks)