COMPOSITE AND INVERSE FUNCTIONS

Solve these.

1. The functions $f(x)$ and $g(x)$ are given by the following:

$$f(x) = 3x - 1$$
$$g(x) = 2x + 4$$

(a) Calculate the value of $fg(2)$

(b) Calculate the value of $ff(3)$

(c) Find $gf(x)$

2. Given $f(x) = \dfrac{2x + 1}{3}$

(a) Calculate the value of $f(7)$

(b) Find $f^{-1}(x)$

3. The functions $f(x)$, $g(x)$ and $h(x)$ are given by the following:

$$f(x) = x^2 - 3$$
$$g(x) = 2x + 1$$
$$h(x) = \frac{x}{2}$$

(a) Find $fg(x)$

(b) Find $gh(x)$

(c) Find $h^{-1}(x)$

4. The function f is such that $f(x) = 4x - 7$

(a) Solve $f(x) = 17$

(b) Find $f^{-1}(x)$