4. The functions f and g are defined by

$$f(x) = 1 - 3x^2 \qquad x \in \mathbb{R}$$

$$g(x) = \frac{4}{x} - 2 \qquad x > 0$$

(a) Find fg(2)

(1)

(b) Show that gf(x) can be written in the form

$$\frac{a + bx^2}{c + dx^2}$$

where a, b, c and d are constants to be found.

(3)