

- 11** It is given that a curve has equation $y = k(3x - k)^{-1} + 3x$, where k is a constant.

(a) Find, in terms of k , the values of x at which there is a stationary point. [4]

[illegible]

The function f has a stationary value at $x = a$ and is defined by

$$f(x) = 4(3x - 4)^{-1} + 3x \quad \text{for } x \geq \frac{3}{2}.$$

- (b) Find the value of a and determine the nature of the stationary value. [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

- (c) The function g is defined by $g(x) = -(3x + 1)^{-1} + 3x$ for $x \geq 0$.

Determine, making your reasoning clear, whether g is an increasing function, a decreasing function or neither. [2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....