Question 6   (5 marks)

Consider the function $f(x)$, defined for $x \geq 0$. The graph of $y = f(x)$ is shown below.

Point B is a local maximum with x-coordinate b, point D is an inflection point with x-coordinate d, and point F is a local minimum with x-coordinate f.

Points A, C, E and G are also shown on the curve.

(a) For what value(s) of x is $f(x)$ decreasing?

(1 mark)

(b) Refer to the seven labelled points on the graph on page 12.

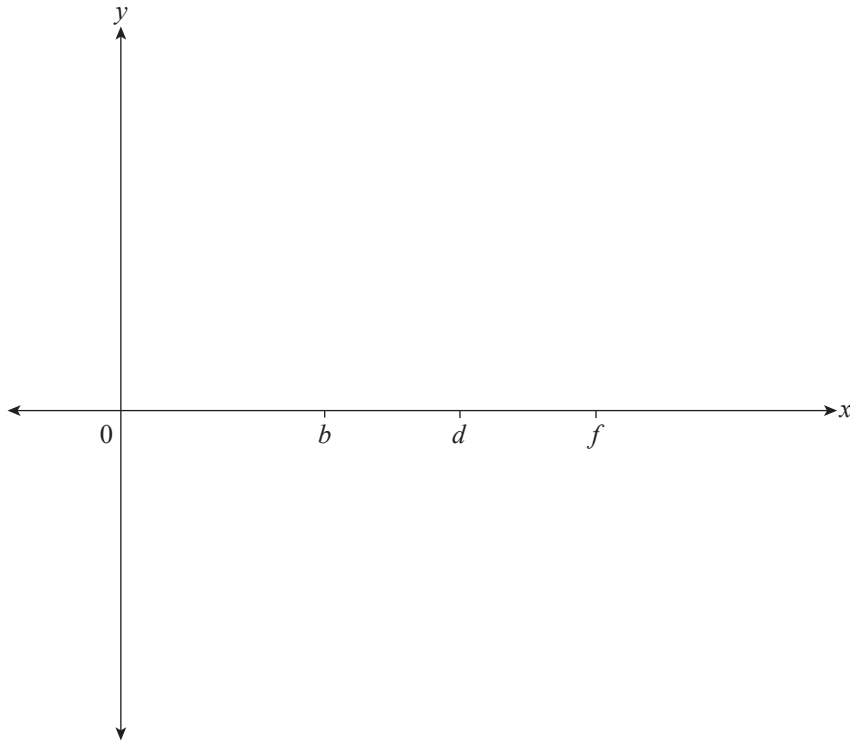Identify the point(s) with the following properties:

(i) $f'(x) > 0$ and $f''(x) < 0$.

(1 mark)

(ii) $f'(x) < 0$ and $f''(x) < 0$.

(1 mark)

(c) On the axes below, sketch the graph of $f'(x)$.

(2 marks)