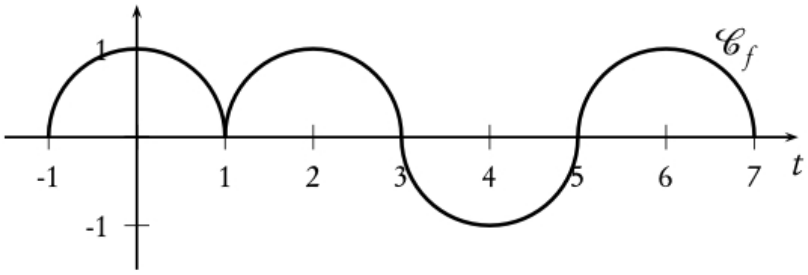
Subject 1

Please, don't write on the exam paper.

The graph below labelled C_f represents a continuous function *f*.
Each segment of the graph is a semicircle.

Let *g* be defined on $[-1;7]$ by $g(x) = \int_{-1}^{x} f(t)dt$.



1. Give a geometrical definition of the function *g* in terms of area.

2. Determine $g(-1)$, $g(0)$ and $g(5)$.

3. Find all the $x \in [-1;7]$ so that $g(x) = \frac{3\pi}{4}$.

4. Over which intervals is *g* increasing? Over which intervals is *g* decreasing?

5. Sketch a freehand graph of *g* for $-1 \le x \le 7$.