

*Please do not write on this exam paper and give it back at the end of the test*

**STUDY OF A FUNCTION**

Let's consider the function  $f$  defined by  $f(x) = \frac{-\sqrt{7}}{x} + 5$ ,  $x$  being a real number.

- a) What is the domain of  $f$ ?
- b) Determine  $f(-1)$  and  $f\left(\frac{-\sqrt{7}}{2}\right)$ .
- c) Over which intervals is  $f$  decreasing?
- d) Sketch a freehand graph of  $f$ .
- e) Consider the straight line (d)  $y=5$ . Is it possible to find points belonging both to (d) and to the curve of the function  $f$ ? Explain your answer.