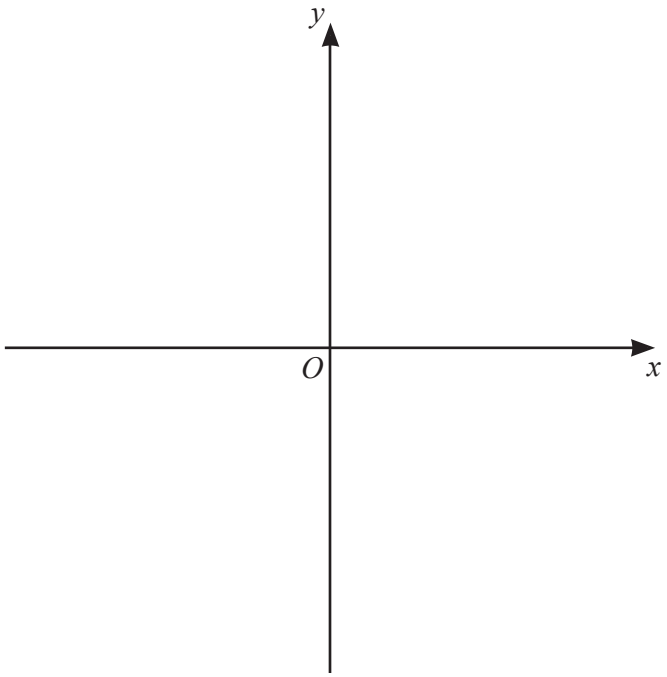
**9** **(a)** Sketch the graph of $y = (x+1)(3-x)(3+x)$, indicating the coordinates of the points where the graph crosses the $x$-axis and the $y$-axis.




[4]

**(b)** **(i)** Show that $y = (x+1)(3-x)(3+x)$ can be written as $y = 9+9x-x^2-x^3$.

[2]

**(ii)** Calculate the $x$–values of the turning points of $y = 9 + 9x - x^2 - x^3$.
Show all your working and give your answers correct to 2 decimal places.

$x =$ ....., $x =$ ..... [7]

**(iii)** The equation $9 + 9x - x^2 - x^3 = k$ has one solution only when $k < a$ and when $k > b$, where $a$ and $b$ are integers.

Find the maximum value of $a$ and the minimum value of $b$.

$a =$ .....

$b =$ ..... [3]