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**2015 11** Solve the inequality  $\frac{4}{x+3} \geq 1$ .

**3**

$$\frac{4}{x+3} \geq 1$$

$$\text{Let } x + 3 = 0$$

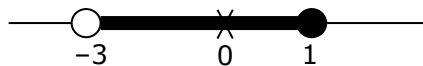
$$x = -3$$

$$\text{Also, let } \frac{4}{x+3} = 1$$

$$4 = x + 3$$

$$x = 1$$

Consider  $x = 0$ :



$\therefore$  Yes!

$$\therefore -3 < x \leq 1$$

State Mean:  
**2.49**

\* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by BOSTES.

### Board of Studies: Notes from the Marking Centre

In the better responses, candidates approached the question by identifying the two critical values  $x = -3$  and  $x = 1$  before giving the correct algebraic solution:  $-3 < x \leq 1$

There was a wide range of solution types. A significant feature of the responses was not so much the method used to arrive at the two critical values, but in analysing the correct section of the number line.

Common problems were:

- including  $x = -3$  in the solution, ie incorrectly writing  $-3 \leq x \leq 1$
- factorising the quadratic expression  $x^2 + 2x - 3$  incorrectly
- using incorrect reasoning from a diagram.