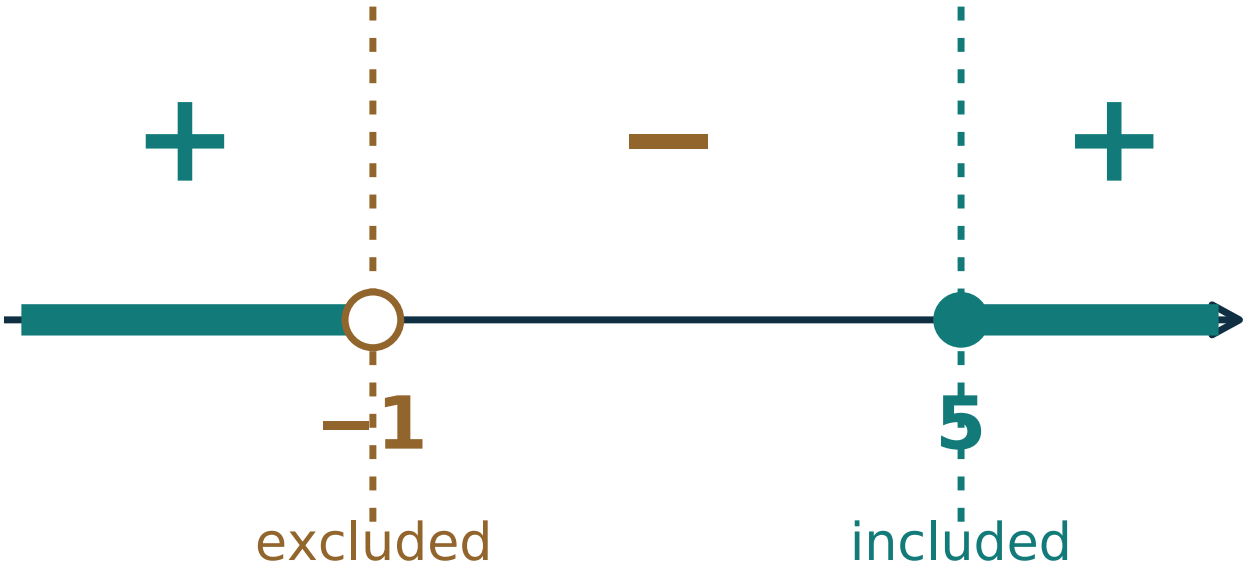
GRE-U14 / SEE THE CONCEPT

One excluded value. Two valid solution regions.

Read the visual model, then test the reasoning.

$$(x - 5) / [2(x + 1)] \geq 0$$



$$x < -1 \text{ or } x \geq 5$$

Preserve the original domain and test every sign interval.

Solve (x - 2)/(x + 1) ≥ 1/2 over the real numbers. The original denominator excludes x = -1. Move everything to one side before deciding which intervals work.

GRE-U14 / WORK THE CASE

One excluded value. Two valid solution regions.

Follow the stated conditions. Check the answer against the original case.

$$(x - 5) / [2(x + 1)] \geq 0$$



$x < -1$	$-1 < x < 5$	$x > 5$
$- / - = +$	$- / + = -$	$+ / + = +$
KEEP	REJECT	KEEP

1 CREATE ONE EXPRESSION

$[(2(x - 2) - (x + 1))/(2(x + 1))] \geq 0$ becomes $(x - 5)/(2(x + 1)) \geq 0$.

2 TEST ALL THREE INTERVALS

Below -1, both factors are negative. Between -1 and 5 the signs differ. Above 5 both are positive.

3 HANDLE THE ENDPOINTS

Include 5 because equality is allowed. Exclude -1 because the original expression is undefined. Solution: $x < -1$ or $x \geq 5$.

TEST YOUR REASONING

What is lost by multiplying by x + 1 as if it were always positive?

The valid $x < -1$ interval can disappear. At $x = -2$, the original left side is 4; at $x = 5$ it equals 1/2.

Cancelling requires a nonzero denominator. Squaring can introduce candidates; inequality operations must preserve the relevant sign and original domain.