Inequalities and regions: describing a region

Exit ticket ANSWERS Name _____

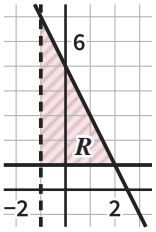
1. R is above the solid line $y = 2x - 1$ and below the dashed line $y = 3$. Write two inequalities for R.

$y \geq 2x - 1, y < 3$

2. List the points with integer coordinates in the region where $y > 0$, $x \geq -1$ and $x + y \leq 2$.

$(-1, 1), (-1, 2), (-1, 3), (0, 1), (0, 2), (1, 1)$

3. Write down the three inequalities that describe R.



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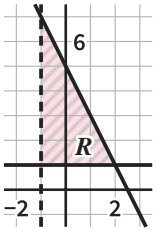

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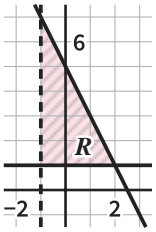

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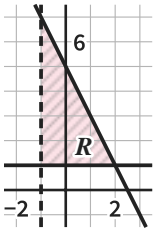

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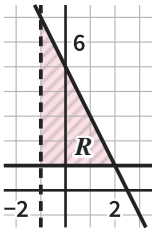

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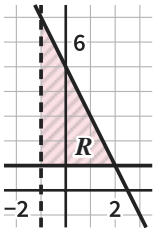

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The Maths Habit

Exit ticket Inequalities and regions: describing a region

1 **R is above the solid line $y = 2x - 1$ and below the dashed line $y = 3$. Write two inequalities for R.**

$y \geq 2x - 1, y < 3$

TESTS Above or below a line, as an inequality

LOOK FOR $y \leq 2x - 1, y > 3$ the signs turned round: above means y is greater

$y \leq 3$ a dashed line read as included

FIX IT

R is below the dashed line $y = x + 2$ and to the right of the solid line $x = 1$. Write two inequalities for R. $y < x + 2, x \geq 1$

2 **List the points with integer coordinates in the region where $y > 0$, $x \geq -1$ and $x + y \leq 2$.**

$(-1, 1), (-1, 2), (-1, 3), (0, 1), (0, 2), (1, 1)$

TESTS Integer points: solid lines in, dashed lines out

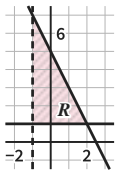
LOOK FOR $(0, 0), (1, 0)$ or $(2, 0)$ *included* points on the dashed line $y = 0$ are not in R

$(-1, 1), (-1, 2), (-1, 3)$ *left out* points on the solid line $x = -1$ are in R

FIX IT

List the points with integer coordinates where $x > 0$, $y \geq 0$ and $x + 2y \leq 4$. $(1, 0), (1, 1), (2, 0), (2, 1), (3, 0), (4, 0)$

3 **Write down the three inequalities that describe R.**



$y \geq 1, x > -1, 2x + y \leq 5$

TESTS Writing the inequalities for a drawn region

LOOK FOR $y > 1, x > -1, 2x + y > 5$ the same sign on every line

$x \geq -1$ a dashed line read as included

FIX IT

R is above the dashed line $y = 2$ and to the left of the solid line $x = -1$.
Write the two inequalities. $y > 2, x \leq -1$