GCSE HIGHER · REVISION MAT 1

Solving inequalities

1 Solve

$$3x + 4 > 19$$

2 Write down the inequality shown.



3 List the integers that satisfy

$$-3 \leq 2x + 1 < 7$$

4 A rectangle is x cm wide and $(x + 5)$ cm long.

Its perimeter is less than 50 cm.

x is a whole number.

Find the largest possible area.

5 Ben says that $x^2 > 9$ means $x > 3$.

Explain why Ben is not fully correct.

6 Find all the integers n for which

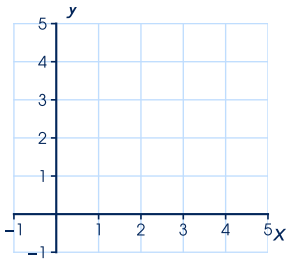
$$n^2 < 30 \text{ and } 3n + 7 > 1$$

7 Solve

$$x^2 - x - 12 \leq 0$$

8 Find all the points with integer coordinates that satisfy

$$y < 4, y > x, x + y > 2$$



ANSWERS · REVISION MAT 1

Solving inequalities

1 $3x > 15$

$x > 5$

2 **$-2 < x \leq 3$**

3 $-4 \leq 2x < 6$

$-2 \leq x < 3$

$-2, -1, 0, 1, 2$

4 $4x + 10 < 50 \Rightarrow x < 10$

Largest $x = 9$: 9 cm by 14 cm

Area = 126 cm²

5 Negative values also work,

e.g. $(-4)^2 = 16 > 9$.

$x < -3$ or $x > 3$

6 $3n > -6 \Rightarrow n > -2$

$n^2 < 30 \Rightarrow -5 \leq n \leq 5$

$-1, 0, 1, 2, 3, 4, 5$

7 $(x - 4)(x + 3) \leq 0$

Critical values -3 and 4

$-3 \leq x \leq 4$

8 Test each row:

$y = 2$: $x = 1$ only

$y = 3$: $x = 0, 1, 2$

(1, 2), (0, 3), (1, 3), (2, 3)

Mr&Mrs MATHS