GCSE HIGHER · REVISION MAT 3

Solving inequalities

1 Solve

$$\frac{x}{4} + 2 \geq 5$$

2 Write down the inequality shown.



3 Is $x = 3$ a solution of

$$4x - 7 > 2x - 1?$$

Explain your answer.

4 A triangle has sides x cm, $(x + 3)$ cm and 10 cm.

Its perimeter is at most 30 cm.

Find all possible whole-number values of x.

5 Solve

$$3 - 2x \leq 4x + 15$$

6 Find the smallest integer n for which

$$5n - 7 > 3(n + 4)$$

7 Solve

$$x^2 \geq 3x + 10$$

8 Find the integer that satisfies both

$$x^2 - 5x < 0 \text{ and } 2x - 3 > x$$

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

Solving inequalities

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

$x \geq 12$

2 $-3 \leq x < 2$

3 $2x > 6 \Rightarrow x > 3$

No: 3 is not greater than 3.

4 $2x + 13 \leq 30 \Rightarrow x \leq 8.5$

Triangle: $x + x + 3 > 10 \Rightarrow x > 3.5$

$x = 4, 5, 6, 7$ or 8

5 $-12 \leq 6x$

$x \geq -2$

6 $5n - 7 > 3n + 12$

$2n > 19 \Rightarrow n > 9.5$

$n = 10$

7 $x^2 - 3x - 10 \geq 0$

$(x - 5)(x + 2) \geq 0$

$x \leq -2$ or $x \geq 5$

8 $x(x - 5) < 0 \Rightarrow 0 < x < 5$

$x > 3$

$x = 4$

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