

Inequalities

For AQA Level 2 Certificate in Further Mathematics (8365)

Name _____

Total marks: **28**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

- 1** Solve $-4x \geq 28$
Circle your answer.

[1 mark]

$$x \geq -7$$

$$x \leq -7$$

$$x \geq 7$$

$$x \leq 7$$

- 2** $-4 \leq t \leq 2$
Circle the set of all possible values of t^2

[1 mark]

$$4 \leq t^2 \leq 16$$

$$0 \leq t^2 \leq 16$$

$$-16 \leq t^2 \leq 4$$

$$0 \leq t^2 \leq 4$$

- 3** Solve $\frac{5-2x}{3} > \frac{x}{4} + 1$

[3 marks]

Answer _____

4 Solve $(3x - 1)(x + 2) \geq 3(x^2 - 4)$

[3 marks]

Answer _____

5 Work out all the integers n for which $30 - 4n^2 > 2$

[2 marks]

Answer _____

6 (a) Solve $x^2 - 2x - 15 \leq 0$

[2 marks]

Answer _____

(b) Solve $2x^2 + 7x > 15$

[3 marks]

Answer _____

- 7** A rectangle has length $(3x - 4)$ cm and width $(x + 2)$ cm.
The perimeter of the rectangle is less than 44 cm.
The length of the rectangle is greater than its width.
Work out the possible values of x .

[2 marks]

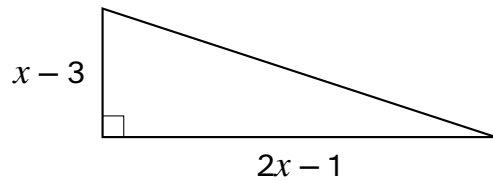
Answer _____

- 8** Given that $x > 0$, solve $2x \geq 3 + \frac{5}{x}$
You must show your working.

[4 marks]

Answer _____

- 9 Here is a right-angled triangle with sides measured in centimetres.



Not drawn accurately

The area of the triangle is less than 9 cm^2
Use algebra to find all the possible values of x .
Do not use trial and improvement.

[4 marks]

Answer _____

- 10 Sequence A has n th term $7n + 16$
Sequence B has n th term $n^2 + n$

Work out the values of n for which the n th term of sequence B is greater than the n th term of sequence A.

Do not use trial and improvement. You must show your working.

[3 marks]

Answer _____