

## Solving Quadratics through Factorising

Please write clearly in block capitals

Forename:

Surname:

### Materials

For this paper you must have:

- mathematical instruments



You must **not** use a calculator.

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

### Advice

- In all calculations, show clearly how you work out your answer.

**1** Factorise and thus solve the following quadratic equations, finding both values of  $x$ : (Level 5)

**1(a)**  $x^2 + x - 56 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**1(b)**  $x^2 - 4x + 4 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**1(c)**  $x^2 + 12x + 32 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**1(d)**  $x^2 + 2x - 35 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**Turn over for next question**

**2** Factorise and thus solve the following quadratic equations, finding both values of  $x$ : (Level 5)

**2(a)**  $x^2 + 5x = 6$

**[3 marks]**

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

**2(b)**  $x^2 - 3x = 40$

**[3 marks]**

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

**2(c)**  $x^2 + 5 = 6x$

**[3 marks]**

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

**2(d)**  $x^2 + 3x = 18$

**[3 marks]**

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

**Turn over for next question**

**3** Factorise and thus solve the following quadratic equations, finding both values of  $x$ : (Level 5)

**3(a)**  $3x^2 + 10x - 8 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**3(b)**  $3x^2 + 39x + 126 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**3(c)**  $8x^2 + 46x + 30 = 0$

[3 marks]

\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

**3(d)**  $8x^2 + 10x + 56 = 7x^2 + 67$

[3 marks]

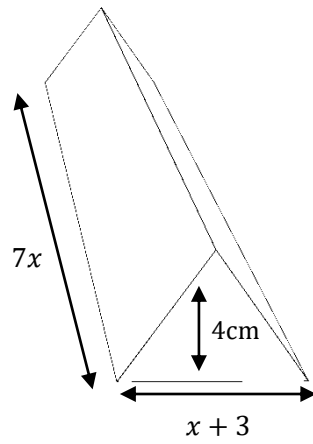
\_\_\_\_\_  
\_\_\_\_\_  
Answer \_\_\_\_\_

Turn over for next question

6

The triangular prism chocolate box shown below has a volume of  $140\text{cm}^3$ .

(Level 6)



Not drawn  
accurately

Determine the **only** viable length of  $x$ .

[5 marks]

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Answer \_\_\_\_\_

**End of Questions**