

Completing the Square

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** 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 Write the following in the form $(x + a)^2 + b$ where a and b are integers: (Level 6)

1(a) $x^2 + 4x + 5$

[2 marks]

Answer _____

1(b) $x^2 - 14x - 1$

[2 marks]

Answer _____

1(c) $x^2 - 24x + 5$

[2 marks]

Answer _____

Turn over for next question

2 Write the following in the form $(x + a)^2 + b$ where a and b are integers: (Level 6)

2(a) $x^2 + 10x + 8$

[2 marks]

Answer _____

2(b) $x^2 - 4x + 16$

[2 marks]

Answer _____

2(c) $x^2 - 8x + 14$

[2 marks]

Answer _____

Turn over for next question

3 Write the following in the form $(x + a)^2 + b$ where a and b are integers: (Level 6)

3(a) $x^2 + 6x + 20$

[2 marks]

Answer _____

3(b) $x^2 + 12x - 8$

[2 marks]

Answer _____

3(c) $x^2 - 2x - 6$

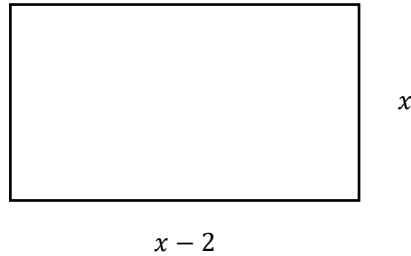
[2 marks]

Answer _____

Turn over for next question

- 4** A rectangle has sides of x and $(x-2)$ cm.
The area of the rectangle is 3cm^2

(Level 7)



Not drawn accurately

- 4(a)** Show that $(x - 1)^2 - 4 = 0$

[3 marks]

Answer _____

- 4(b)** Hence, or otherwise, find the perimeter of the rectangle.

[3 marks]

Answer _____

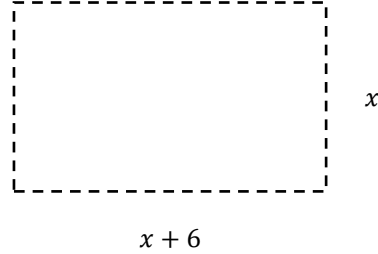
Turn over for next question

Turn over ►

6 A small farmers field is shown below.

(Level 7)

Not drawn
accurately



Given that the area of the field is 36 m^2 .

Find the perimeter of the field in meters.

Give your answer in the form $a\sqrt{5}$ where a is an integers.

[6 marks]

Answer _____

End of questions