

Completing the Square ($a > 1$)

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 $a(x + b)^2 + c$ (Level 7)

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

[2 marks]

Answer _____

1(b) $2x^2 - 16x - 2$

[2 marks]

Answer _____

1(c) $3x^2 - 24x + 6$

[2 marks]

Answer _____

Turn over for next question

2 Write the following in the form $a(x + b)^2 + c$ (Level 7)

2(a) $3x^2 + 18x - 1$

[2 marks]

Answer _____

2(b) $4x^2 - 8x - 8$

[2 marks]

Answer _____

2(c) $6x^2 - 24x - 8$

[2 marks]

Answer _____

Turn over for next question

3 Write the following in the form $a(x + b)^2 + c$ (Level 7)

3(a) $3x^2 + 6x - 8$

[2 marks]

Answer _____

3(b) $5x^2 - 20x - 12$

[2 marks]

Answer _____

3(c) $8x^2 + 32x - 12$

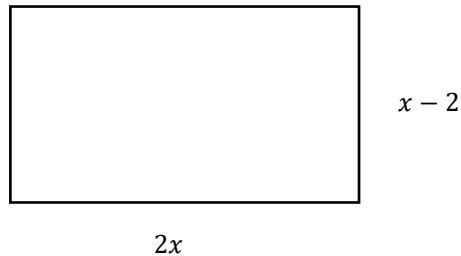
[2 marks]

Answer _____

Turn over for next question

- 4** A rectangle has sides of x and $(x-2)$ cm.
The area of the rectangle is 16 cm^2

(Level 8)



Not drawn accurately

- 4(a)** Show that $2(x - 1)^2 - 18 = 0$

[3 marks]

Answer _____

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

[3 marks]

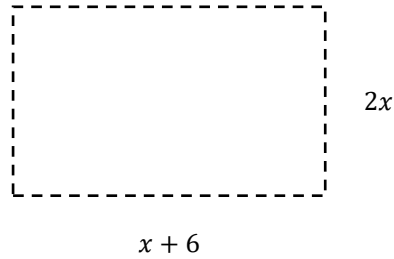
Answer _____

Turn over for next question

Turn over ►

5 A small farmers field is shown below.

(Level 8)



Not drawn
accurately

Given that the area of the field is 27 m^2 .

Find the perimeter of the field in meters.

Give your answer in the form $a\sqrt{10} - b$ where a and b are integers.

[6 marks]

Answer _____



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