

Algebraic fractions

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** Express the following as single fractions. (Level 5)
Give your answers in their simplest forms.

1(a) $\frac{m}{3} + \frac{m}{4}$ [1 mark]

Answer _____

1(b) $\frac{x}{16} + \frac{7x}{4}$ [1 mark]

Answer _____

1(c) $\frac{25x}{27} + \frac{2x}{9}$ [1 mark]

Answer _____

Turn over for next question

- 2** Express the following as single fractions (Level 5)
Give your answers in their simplest forms.

2(a) $\frac{4y}{7} - \frac{6y}{35}$ [1 mark]

Answer _____

2(b) $\frac{10x}{3} - \frac{3}{9}$ [1 mark]

Answer _____

2(c) $\frac{10}{y} - \frac{4}{5}$ [1 mark]

Answer _____

Turn over for next question

- 3** Express the following as single fractions
Give your answers in their simplest forms.

(Level 6)

3(a) $\frac{x-10}{2} + \frac{3x}{10}$

[1 mark]

Answer _____

3(b) $\frac{b-2}{3} - \frac{b}{2}$

[1 mark]

Answer _____

3(c) $\frac{a+3}{2} + \frac{2a-1}{3}$

[2 marks]

Answer _____

Turn over for next question

- 4** Express the following as single fractions
Give your answers in their simplest forms.

(Level 6)

4(a) $\frac{3x + 1}{6} + \frac{2x - 2}{4}$

[2 marks]

Answer _____

4(b) $\frac{4}{2x - 2} + \frac{10}{x - 1}$

[2 marks]

Answer _____

4(c) $\frac{3(x + 1)}{5x} + \frac{2x}{2x + 2}$

[2 marks]

Answer _____

Turn over for next question

5 Simplify fully,

(Level 6)

5(a) $\frac{4x^2 + 16x}{x^2 - 16}$

[2 marks]

Answer _____

5(b) $\frac{2x + 4}{x + 1} \div \frac{x^2 + x - 2}{2x^2 + 5x + 3}$

[3 marks]

Answer _____

Turn over for next question

6 Circle **two** of the expressions below which are equivalent.

(Level 6)

[2 marks]

$$\frac{1}{x+4}$$

$$\frac{x-4}{x^2+16}$$

$$\frac{x+2}{x^2+6x+8}$$

$$\frac{x+4}{x^2+5x+6}$$

7 Simplify fully,

(Level 6)

7(a)

$$\frac{x-5}{x^2-25}$$

[1 mark]

Answer _____

7(b)

$$\frac{x^2+x-6}{x^2-x-12}$$

[2 marks]

Answer _____

Turn over for next question

8

Solve $\frac{1}{2x-3} + \frac{4}{x+1} = 1$

*(Level 7)***A solution by trial and improvement will not be accepted.****[4 marks]**

Answer _____

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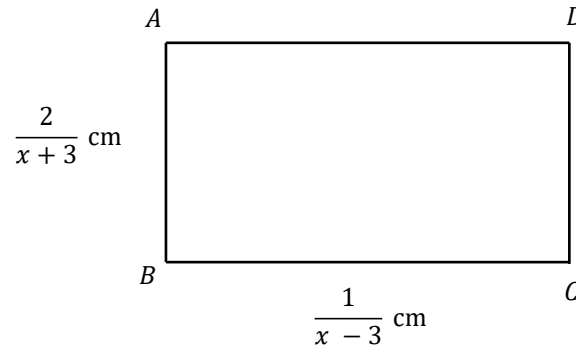
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Turn over ►

9 The diagram below shows a rectangle.

(Level 6)

Not drawn accurately



The perimeter of the rectangle is equal to 3 times the area.

Find the value of x .

[5 marks]

Answer _____ cm



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