Name: _____

GCSE (1 – 9)

Algebraic Fractions

Instructions

• Use **black** ink or ball-point pen.
• Answer all questions.
• Answer the questions in the spaces provided
– *there may be more space than you need.*
• Diagrams are **NOT** accurately drawn, unless otherwise indicated.
• You must **show all your working out.**

Information

• The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

• Read each question carefully before you start to answer it.
• Keep an eye on the time.
• Try to answer every question.
• Check your answers if you have time at the end

1 Simplify fully $\dfrac{x^2 + 5x}{x^2 + 7x + 10}$

….....

(Total for question 1 is 2 marks)

2 Simplify fully $\dfrac{x^2 - x - 12}{x^2 - 9x + 20}$

….....

(Total for question 2 is 2 marks)

3 Simplify fully $\dfrac{3x^2 + 9x}{x^2 - 9}$

….....

(Total for question 3 is 2 marks)

4 Simplify fully $\dfrac{x + 4}{x^2 - 16}$

….....

(Total for question 4 is 2 marks)

5 Write $\frac{3x^2 + 11x - 4}{x^2 + 3x - 4}$ in the form $\frac{ax + b}{x + c}$ where *a, b,* and *c* are integers.

….....

(Total for question 5 is 3 marks)

6 Write $\frac{x^2 + 7x - 18}{2x^2 - x - 6}$ in the form $\frac{x + a}{bx + c}$ where *a, b,* and *c* are integers.

….....

(Total for question 6 is 3 marks)

7 Simplify fully $\dfrac{3x+6}{x-4} \div \dfrac{2x^2+9x+10}{x^2-4x}$

….....

(Total for question 7 is 3 marks)

8 Simplify fully $\dfrac{2x-2}{x+5} \div \dfrac{x^2-4x+3}{2x^2+13x+15}$

….....

(Total for question 8 is 3 marks)

9 Solve $\frac{8}{x+3} + \frac{3}{x+8} = 1$

…….....

(Total for question 9 is 4 marks)

10 Solve $\frac{8}{3x-2} + \frac{6}{x+1} = 2$

…….....

(Total for question 10 is 4 marks)

11 Solve $\frac{2}{5-x}+\frac{3}{x+7}=1$

…….....

(Total for question 11 is 4 marks)

12 Solve $\frac{7}{x+1}-\frac{4}{3x-2}=1$

…….....

(Total for question 12 is 4 marks)

13 Given that

$$3x + 5 \ : \ x + 4 \ = \ 2x + 4 \ : \ x + 2$$

Find the possible values of x.

.....

(Total for question 13 is 4 marks)

14 Given that

$$x - 1 \ : 2x - 3 \ = \ x + 2 \ : \ 3x - 2$$

Find the possible values of x.

.....

(Total for question 14 is 4 marks)

15 Given that

$$x + 9 \ : \ 5x - 1 \ = \ x + 7 \ : \ 2x - 3$$

Find the possible values of x.

.....

(Total for question 15 is 4 marks)

16 Given that

$$5 - 3x \ : \ 9 - x \ = \ 3x + 7 \ : \ 4 - x$$

Find the possible values of x.

.....

(Total for question 16 is 4 marks)