NAME _____ **INDEX NUMBER** _____

SCHOOL _____ **DATE** _____

ALGEBRAIC EXPRESSIONS

KCSE 1989 – 2012 Form 2 Mathematics		Working space
1.	**1989 Q2 P1** Factorize completely $a^2 - 15ab + 36b^2$ (2 marks)	
2.	**1990 Q3 P1** Simplify $\frac{(6a+b)(a+b)-7b(a+b)}{2a^2-2b^2}$ (3 marks)	
3.	**1991 Q8 P2** Simplify $\frac{a}{2(a+b)} + \frac{b}{2(a-b)}$ (3 marks)	
4.	**1992 Q6 P1** If the expression $25y^2 - 70y + d$ is a perfect square, where d is a constant, find the value of d. (3 marks)	Working Space

5.	**1993 Q1 P1** Factorize $2x^2y^2 - 5xy - 12$ (3 marks)	
6.	**1993 Q14 P2** Simplify $\frac{x-2}{x+2} + \frac{2x+20}{x^2-4}$	
7.	**1994 Q 2 P1** Simplify $28x^2 + 3x - 1$ (2 marks)	
8.	**1995 Q 2 P1** Simplify (3 marks) $\frac{2x-2}{6x^2-x-12} \div \frac{x-1}{2x-3}$	

		Working Space
9.	**1995 Q 8 P2 z** Simplify completely $\frac{3x^2-1}{x^2-1}-\frac{2x+1}{x+1}$ (3 marks)	
10.	**1996 Q 2 P1** Factorize completely $3x^2 - 2xy - y^2$ (2 marks)	
11.	**1997 Q 2 P1** Find the greatest common factor of x^3y^2 and $4xy^4$. Hence factorize completely the expression $x^3y^2 - 4xy^4$	
12.	**1998 Q 2 P1** Factorize $a^2 - b^2$ Hence find the exact value of $2557^2 - 2547^2$ (2 marks)	

		Working Space
13.	**1999 Q 1b P1** (b) Simplify the expression 5a – 4b – 2 [a- (2b + c)] (2 marks)	
14.	**1999 Q 15 P1** By substituting y for (2-a) or otherwise simplify the expression $(x + 2 – a)^2 + (2 – a-x)^2 – 2(x- 2 + a) (x + 2 – a)$. Give your answer in terms of a and as a product of two squares. (3 marks)	
15.	**1999 Q 22 P1** If $x^2 + y^2 = 29$ and $x + y = 3$ (a) Determine the values of (i) $x^2 + 2xy + y^2$ (ii) $2xy$ (iii) $x^2 – 2xy + y^2$ (iv) $x – y$ (b) Find the value of x and y (8 marks)	
16.	**2000 Q 2 P1** Simplify the expression $\frac{3a^2+4ab+b}{4a^2+3ab-b^2}$ (3 marks)	

		Working Space
17.	**2001 Q 6 P1** Simplify the expression $\frac{3x^2 - 4xy - y^2}{9x^2 - y^2}$ (3 marks)	
18.	**2002 Q 2 P1** Simplify: $(x + 2y)^2 - (x- 2y)^2$ (3 marks)	
19.	**2002 Q 11 P2** Simply the expression $\frac{4x^2 - y^2}{2x^2 - 7xy + 3y^2}$	
20.	**2003 Q2 P1** Simplify the expression $\left(a + \frac{1}{b}\right)^2 - \left(a - \frac{1}{b}\right)^2$ (3 marks)	

		Working Space
21.	**2004 Q 3 P1** Simplify the expression $\frac{2a^2-3ab-2b^2}{4a^2-b^2}$	
22.	**2005 Q 4 P1** Simplify the expression $\frac{9t^2-25a^2}{6t^2+19at+15a^2}$ (3 marks)	
23.	**2006 Q 3 P1** Simplify $\frac{p^2+2pq+q^2}{p^3-pq^2+p^2q-q^3}$ (4 marks)	
24.	**2007 Q 3 P1** Expand the expression $(x^2 - y^2)(x^2 + y^2)(x^4 - y^4)$ (2 marks)	

		Working Space
25.	**2007 Q 6 P1** Simplify the expression $\frac{15a^2b-10ab^2}{3a^2-5ab+2b^2}$ (3 marks)	
26.	**2008 Q 3 P1** Simplify the expression $\frac{a^4-b^4}{a^3-ab^2}$ (3marks)	
27.	**2009 Q 8 P1** Simplify the expression $\frac{12x^2+ax-6a^2}{9x^2-4a^2}$ (3 marks)	
28.	**2010 Q 12 P1** Simplify the expression $\frac{x^2+x-4xy-4x}{(x+1)(4xy^2-xy)}$ (3 marks)	

		Working Space
29.	**2011 Q 6 P1** Simplify the expression: $\frac{4x-9x^3}{3x^2-4x-4}$ (3 marks)	
30.	**2011 Q 8 P1** Factorise $2x^2y^2 - 5xy - 12$	
31.	**2012 Q3 P1** Expand and simplify the expression $(2x^2 - 3y^3)^2 + 12x^2y^3$ (2 marks)	
32.	**2012 Q20 P1** (a) Express $\frac{1}{x-2} - \frac{2}{x+5} = \frac{3}{x+1}$ in the form $ax^2 + bx + c = 0$, where a, b and c are constants hence solve for x (4 marks) (b) Neema did y tests and scored a total of 120 marks. She did two more tests which she scored 14 and 13marks. The mean score of the first y tests was 3marks more than the mean score for all the tests she did. Find the total number of tests that she did.	