

NAME _____ INDEX NUMBER _____

SCHOOL _____ DATE _____

ALGEBRAIC EXPRESSIONS

	<i>KCSE 1989 – 2012 Form 2 Mathematics</i>	Working space
1.	<p>1989 Q2 P1 Factorize completely $a^2 - 15ab + 36b^2$ (2 marks)</p>	
2.	<p>1990 Q3 P1 Simplify $\frac{(6a+b)(a+b)-7b(a+b)}{2a^2-2b^2}$ (3 marks)</p>	
3.	<p>1991 Q8 P2 Simplify $\frac{a}{2(a+b)} + \frac{b}{2(a-b)}$ (3 marks)</p>	
4.	<p>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)</p>	

		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)	

	$\frac{2x-2}{6x^2-x-12} \div \frac{x-1}{2x-3}$	<p style="text-align: center;">Working Space</p>
9.	<p>1995 Q 8 P2 z Simplify completely</p> $\frac{3x^2-1}{x^2-1} - \frac{2x+1}{x+1}$ <p style="text-align: right;">(3 marks)</p>	
10.	<p>1996 Q 2 P1 Factorize completely $3x^2 - 2xy - y^2$</p> <p style="text-align: right;">(2 marks)</p>	
11.	<p>1997 Q 2 P1 Find the greatest common factor of x^3y^2 and $4xy^4$. Hence factorize completely the expression $x^3y^2 - 4xy^4$</p>	

12.	<p>1998 Q 2 P1 Factorize $a^2 - b^2$ Hence find the exact value of $2557^2 - 2547^2$</p> <p style="text-align: right;">(2 marks)</p>	Working Space
13.	<p>1999 Q 1b P1 (b) Simplify the expression $5a - 4b - 2 [a - (2b + c)]$</p> <p style="text-align: right;">(2 marks)</p>	
14.	<p>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.</p> <p style="text-align: right;">(3 marks)</p>	
15.	<p>1999 Q 22 P1 If $x^2 + y^2 = 29$ and $x + y = 3$ (a) Determine the values of (i) $x^2 + 2xy + y^2$</p>	

	<p>(ii) $2xy$ (iii) $x^2 - 2xy + y^2$ (iv) $x - y$ (b) Find the value of x and y</p>	
		(8 marks)
16.	<p>2000 Q 2 P1 Simplify the expression $\frac{3a^2+4ab+b}{4a^2+3ab-b^2}$</p>	
		(3 marks)
		Working Space
17.	<p>2001 Q 6 P1 Simplify the expression $\frac{3x^2 - 4xy - y^2}{9x^2 - y^2}$</p>	
		(3 marks)
18.	<p>2002 Q 2 P1 Simplify: $(x + 2y)^2 - (x - 2y)^2$</p>	(3 marks)
19.	<p>2002 Q 11 P2 Simplify the expression $\frac{4x^2 - y^2}{2x^2 - 7xy + 3y^2}$</p>	

20.	<p>2003 Q2 P1</p> <p>Simplify the expression $\left(a + \frac{1}{b}\right)^2 - \left(a - \frac{1}{b}\right)^2$</p> <p>(3 marks)</p>	
		Working Space
21.	<p>2004 Q 3 P1</p> <p>Simplify the expression $\frac{2a^2 - 3ab - 2b^2}{4a^2 - b^2}$</p>	
22.	<p>2005 Q 4 P1</p> <p>Simplify the expression $\frac{9t^2 - 25a^2}{6t^2 + 19at + 15a^2}$ (3 marks)</p>	

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	

	<p>Simplify the expression $\frac{a^4 - b^4}{a^3 - ab^2}$ (3marks)</p>	
27.	<p>2009 Q 8 P1</p> <p>Simplify the expression $\frac{12x^2 + ax - 6a^2}{9x^2 - 4a^2}$ (3 marks)</p>	
28.	<p>2010 Q 12 P1</p> <p>Simplify the expression $\frac{x^2 + x - 4xy - 4x}{(x + 1)(4xy^2 - xy)}$ (3 marks)</p>	Working Space
29.	<p>2011 Q 6 P1</p> <p>Simplify the expression: $\frac{4x - 9x^3}{3x^2 - 4x - 4}$</p>	

	(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. (6marks)	