

# ALGEBRAIC EXPRESSIONS

KCSE 1989 – 2012 Form 2 Mathematics

1.	<b>1989 Q2 P1</b>	Factorize completely $a^2 - 15ab + 36b^2$	(2marks)
2.	<b>1990 Q3 P1</b>	Simplify $\frac{(6a+b)(a+b)-7b(a+b)}{2a^2-2b^2}$	(3 mks)
3.	<b>1991 Q8 P2</b>	Simplify $\frac{a}{2(a+b)} + \frac{b}{2(a-b)}$	(3 mks)
4.	<b>1992 Q6 P1</b>	If the expression $25y^2 - 70y + d$ is a perfect square, where d is a constant, find the value of d. (3 mks)	
5.	<b>1993 Q1 P1</b>	Factorize $2x^2 y^2 - 5xy - 12$	(3 mks)
6.	<b>1993 Q14 P2</b>	Simplify $\frac{x-2}{x+2} + \frac{2x+20}{x^2-4}$	
7.	<b>1994 Q 2 P1</b>	Simplify $28x^2 + 3x - 1$	(2 marks)
8.	<b>1995 Q 2 P1</b>	Simplify $\frac{2x-2}{6x^2-x-12} \div \frac{x-1}{2x-3}$	( 3 marks)
9.	<b>1995 Q 8 P2 z</b>	Simplify completely $\frac{3x^2-1}{x^2-1} - \frac{2x+1}{x+1}$	( 3 marks)
10.	<b>1996 Q 2 P1</b>	Factorize completely $3x^2 - 2xy - y^2$	( 2 marks)
11.	<b>1997 Q 2 P1</b>	Find the greatest common factor of $x^3y^2$ and $4xy^4$ . Hence factorize completely the expression $x^3y^2 - 4xy^4$	
12.	<b>1998 Q 2 P1</b>	Factorize $a^2 - b^2$ Hence find the exact value of $2557^2 - 2547^2$	( 2 marks)

13.	<b>1999 Q 1b P1</b> (b) Simplify the expression $5a - 4b - 2 [a - (2b + c)]$ <span style="float: right;">( 2 marks)</span>
14.	<b>1999 Q 15 P1</b> 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.	<b>1999 Q 22 P1</b> 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.	<b>2000 Q 2 P1</b> Simplify the expression $\frac{3a^2+4ab+b}{4a^2+3ab-b^2}$ ( 3 marks)
17.	<b>2001 Q 6 P1</b> Simplify the expression $\frac{3x^2 - 4xy - y^2}{9x^2 - y^2}$ ( 3 marks)
18.	<b>2002 Q 2 P1</b> Simplify: $(x + 2y)^2 - (x - 2y)^2$ (3mks)
19.	<b>2002 Q 11 P2</b> Simply the expression $\frac{4x^2 - y^2}{2x^2 - 7xy + 3y^2}$
20.	<b>2003 Q2 P1</b> Simplify the expression $\left(a + \frac{1}{b}\right)^2 - \left(a - \frac{1}{b}\right)^2$ (3mks)
21.	<b>2004 Q 3 P1</b> Simplify the expression $\frac{2a^2 - 3ab - 2b^2}{4a^2 - b^2}$
22.	<b>2005 Q 4 P1</b> Simplify the expression $\frac{9t^2 - 25a^2}{6t^2 + 19at + 15a^2}$ ( 3 marks)
23.	<b>2006 Q 3 P1</b> Simplify $\frac{p^2+2pq+q^2}{p^3-pq^2+p^2q-q^3}$ ( 4 marks)

24.	<b>2007 Q 3 P1</b> Expand the expression $(x^2 - y^2)(x^2 + y^2)(x^4 - y^4)$	( 2 marks)
25.	<b>2007 Q 6 P1</b> Simplify the expression $\frac{15a^2b - 10ab^2}{3a^2 - 5ab + 2b^2}$	(3 marks)
26.	<b>2008 Q 3 P1</b> Simplify the expression $\frac{a^4 - b^4}{a^3 - ab^2}$	(3mks)
27.	<b>2009 Q 8 P1</b> Simplify the expression $\frac{12x^2 + ax - 6a^2}{9x^2 - 4a^2}$	(3 marks)
28.	<b>2010 Q 12 P1</b> Simplify the expression $\frac{x^2 + x - 4xy - 4x}{(x + 1)(4xy^2 - xy)}$	(3mks)
29.	<b>2011 Q 6 P1</b> Simplify the expression: $\frac{4x - 9x^3}{3x^2 - 4x - 4}$	( 3 mks)
30.	<b>2011 Q 8 P1</b> Factorise $2x^2y^2 - 5xy - 12$	
31.	<b>2012 Q3 P1</b> Expand and simplify the expression $(2x^2 - 3y^3)^2 + 12x^2y^3$	(2marks)
32.	<b>2012 Q20 P1</b> (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 (4marks)  (b) Neema did y tests and scored a total of 120 marks. She did two more tests which she scored 14 and 13 marks. The mean score of the first y tests was 3 marks more than the mean score for all the tests she did. Find the total number of tests that she did. (6marks)	