

INDICES

KCSE 1989 – 2012 Form 3 Mathematics

1.	1989 Q4 P2 Simplify $\frac{25^{3/4} \times 0.9^2 \times 2^2}{5^{5/2} \times 3^3}$ in the form A/B where A and B are integers (2 marks)
2.	1990 Q4 P2 Solve for x in $5^{2x-1} = 12^x$ (3marks)
3.	1991 Q 4 P2 Solve for x in $4^{x-1} = 32$ (3marks)
4.	1993 Q8 P2 Solve for x in $9^x + 3^{2x} - 1 = 53$ (3marks)
5.	1995 Q 5 P2 Find the value of x in the following equations: $49^{x+1} + 7^{2x} = 350$ (4 marks)
6.	1996 Q 9 P2 Find the value of x which satisfies the equation $16x^2 = 8^{4x-3}$ (3 marks)
7.	1997 Q 7 P2 Find the value of m in the following equation $(1/27)^m \times (81)^{-1} = 243$ (3 marks)

8.	<p>1998 Q 10 P2</p> <p>Given that $P = 3y$, express the equation $3^{2y-1} + 2 \times 3^{y-1} = 1$ terms of P. Hence or otherwise find the value of y in the equation</p> $3^{2y-1} + 2 \times 3^{y-1} = 1$ <p style="text-align: right;">(3 marks)</p>
9.	<p>1999 Q 4 P2</p> <p>Simplify $\sqrt{2^x \times 5^{2x} \div 2^{-x}}$</p> <p style="text-align: right;">(2 marks)</p>
10	<p>2000 Q 12 P2</p> <p>Find the value of x which satisfy the equation</p> $5^{2x} - 6 \times 5^x + 5 = 0$ <p style="text-align: right;">(4 marks)</p>
11	<p>2001 Q 2 P2</p> <p>Solve for x in the equation</p> $32^{(x-3)} \div 8^{(x-4)} = 64 \div 2^x$ <p style="text-align: right;">(3 marks)</p>
12	<p>2002 Q 7 P2</p> <p>Solve for x in the equation $\frac{81^{2x} \times 27^x}{9^x} = 729$</p> <p style="text-align: right;">(3 marks)</p>
13	<p>2005 Q 1 P2</p> <p>Find the value of y in the equation</p> $\frac{243 \times 3^{2y}}{729 \times 3^y \div 3^{(2y-1)}} = 81$ <p style="text-align: right;">(3 marks)</p>
14	<p>2008 Q 2 P1</p> <p>Simplify $\frac{27^{\frac{2}{3}} \div 2^4}{32^{-\frac{3}{5}}}$</p> <p style="text-align: right;">(3mks)</p>
15	<p>2009 Q 5 P1</p> <p>Without using logarithm tables or calculators, evaluate</p> $\frac{64^{-\frac{1}{2}} \times 27000^{\frac{2}{3}}}{2^{-4} \times 3^0 \times 5^2}$ <p style="text-align: right;">(4 marks)</p>
16	<p>2010 Q 8 P1</p> <p>Without using mathematical tables or a calculator, evaluate</p>

	$27^{\frac{2}{3}} \times \left(\frac{81}{16}\right)^{-\frac{1}{4}}$ <p>(3mks)</p>
17	<p>2012 Q5 P1</p> <p>Given that $9^{2y} \times 2^x = 72$, find the values of x and y (3marks)</p>