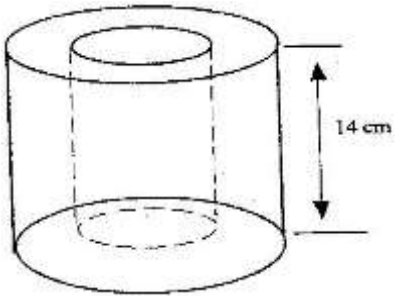
NAME _____ **INDEX NUMBER** _____

SCHOOL_____ **DATE** _____

APPROXIMATIONS AND ERRORS

KCSE 1989 – 2012 Form 3 Mathematics		Working Space
1.	**1996 Q 15 P1** The figure below represents a hollow cylinder. The internal and external radii are estimated to be 6 cm and 8 cm respectively, to the nearest whole number. The height of the cylinder is exactly 14 cm. 0  (a) Determine the exact values for internal and external radii which will give maximum volume of the material used. (1 mark) (b)Calculate the maximum possible volume of the material used. Take the value of to be $^{22}/_{7}$ (2 marks)	
2.	**1997 Q 16 P1** (a) Work out the exact value of R = $\frac{1}{0.003146 - 0.003130}$ (b)An approximate value of R may be obtained by first correcting each of the decimal in the denominator to 5 decimal places (i) The approximate value (ii) The error introduced by the approximation	

©Pyramid Assignments 0722614502/0733494581

All subjects, All topics available

		Working Space
3.	**1998 Q 15 P1** The radius of circle is given as 2.8 cm to 2 significant figures a) If C is the circumference of the circle, determine the limits between which C/π lies b) By taking π to be 3.142, find, to 4 significant figures the line between which the circumference lies.	
4.	**1999 Q 9 P1** The length and breadth of a rectangular floor were measured and found to be 3.1m and 2.2 m respectively. If possible error of 0.01 m was made in each of the measurements, find the: (a) maximum and minimum possible area of the floor (b) Maximum possible wastage in carpet ordered to cover the whole floor	
5.	**2000 Q 10 P1** The length and breadth of a rectangular paper were measured to be the **nearest** centimeter and found to be 18cm and 12 cm respectively. Find the percentage error in its perimeter.	
6.	**2002 Q 8 P2** The sides of a triangle were measured and recorded as 8cm, 10cm and 15cm.Calculate the percentage error in perimeter, correct to 2 decimal places.	

©Pyramid Assignments 0722614502/0733494581

All subjects, All topics available

		Working Space
7.	**2005 Q 9 P1** In this question Mathematical Tables should not be used The base and perpendicular height of a triangle measured to the nearest centimeter are 6 cm and 4 cm respectively. Find (a) The absolute error in calculating the area of the triangle (2marks) (b) The percentage error in the area, giving the answer to 1 decimal place (2marks)	
8.	**2006 Q 4 P2** By correcting each number to one significant figure, approximate the value of 788 x 0.006. Hence calculate the percentage error arising from this approximation. (3 marks)	
9.	**2007 Q 8 P2** A rectangular block has a square base whose side is exactly 8 cm. Its height measured to the nearest millimeter is 3.1 cm. Find in cubic centimeters, the greatest possible error in calculating its volume. (2 marks)	
10	**2008 Q 5 P2** The top of a table is a regular hexagon. Each side of the hexagon measures 50.0 cm. Find the maximum percentage error in calculating the perimeter of the top of the table. (3marks)	

©Pyramid Assignments 0722614502/0733494581

All subjects, All topics available

		Working Space
11	**2010 Q 1 P2** The length and width of a rectangle measured to the nearest millimeter are 7.5cm and 5.2cm respectively. Find, to four significant figures, the percentage error in the area of the rectangle. (3 marks)	
12	**2011 Q 9 P2** The radius of a spherical ball is measured as 7cm,correct to the nearest centimeter. Determine to 2 decimal places, the percentage error in calculating the surface area of the ball. (4 marks)	
13	**2012 Q11 P2** The base and height of a right angled triangle were measured as 6.4cm and 3.5cm respectively. Calculate the maximum absolute error in the area of the triangle. (3 marks)	

©Pyramid Assignments 0722614502/0733494581
All subjects, All topics available