

NAME \_\_\_\_\_ INDEX NUMBER \_\_\_\_\_

SCHOOL \_\_\_\_\_ DATE \_\_\_\_\_

## TRIGONOMETRY III

	<i>KCSE 1989 – 2012 Form 4 Mathematics</i> <i>Answer all the questions</i>	<i>Working space</i>
1.	<p><b>1989 Q7 P2</b> Find the values of <math>\theta</math> between <math>0^\circ</math> and <math>360^\circ</math> that satisfy the equation <math>\sin 2\theta = -0.5</math></p> <p style="text-align: right;">(4marks)</p>	
2.	<p><b>1991 Q2 P2</b> Solve for x <math>4 \sin (x + 20)^\circ = 3</math> for <math>0^\circ \leq x \leq 360^\circ</math></p> <p style="text-align: right;">(3marks)</p>	
3.	<p><b>1992 Q4 P2</b> Determine the amplitude and the period for the graph of <math>y = \sin \left[ \frac{x}{2} - 90 \right]^\circ</math></p> <p style="text-align: right;">(3marks)</p>	

		<i>Working space</i>
4.	<p><b>1994 Q4 P2</b> Solve for <math>\theta</math> in the equation <math>\sin (2\theta - 10^\circ) = - 0.5</math> for <math>0^\circ \leq \theta \leq 360^\circ</math> (4marks)</p>	
5.	<p><b>1996 Q12 P1</b> Solve the equation <math>\sin \frac{5}{2}\theta = \frac{1}{2}</math> for <math>0^\circ \leq \theta \leq 180^\circ</math> (2 marks)</p>	
6.	<p><b>1997 Q11 P1</b> Find the value of <math>\theta</math> between <math>0^\circ</math> and <math>360^\circ</math> satisfying the equation <math>5 \sin \theta = - 4</math></p>	

		<i>Working space</i>
7.	<p><b>1998 Q14 P1</b></p> <p>Solve the equation <math>\cos(\theta + 120^\circ) = \frac{\sqrt{3}}{2}</math> for <math>0 \leq \theta \leq 180^\circ</math></p>	
8.	<p><b>1999 Q12 P2</b></p> <p>Solve the equation <math>8s^2 + 2s - 3 = 0</math>  Hence solve the equation  <math>8 \sin^2\theta + 2\sin\theta - 3 = 0</math> for <math>0^\circ \leq \theta \leq 180^\circ</math></p>	
9.	<p><b>2000 Q8 P2</b></p> <p>Solve the equation <math>2 \sin^2(x-30^\circ) = \cos 60^\circ</math> for <math>-180^\circ \leq x \leq 180^\circ</math></p>	

		<i>Working space</i>
10.	<p><b>2001 Q12 P1</b>  Given that <math>\sin (x + 30)^\circ = \cos 2x^\circ</math> for <math>0^\circ \leq x \leq 90^\circ</math>  find the value of x.  Hence find the value of <math>\cos^2 3x^\circ</math>.</p>	
11.	<p><b>2001 Q15 P2</b>  Solve the equation <math>4 \sin^2 \Theta + 4 \cos \Theta = 5</math>  For <math>0^\circ \leq \Theta \leq 360^\circ</math> give the answer in degrees</p>	
12.	<p><b>2003 Q7 P1</b>  Solve the equation  <math>3 \tan^2 x - 4 \tan x - 4 = 0</math> for <math>0^\circ \leq x \leq 180^\circ</math>  (4marks)</p>	

		<i>Working space</i>
13.	<b>2004 Q9 P1</b> Give that $x^\circ$ is an angle in the first quadrant such that $8 \sin^2 + 2 \cos x - 5 = 0$ Find: a) $\cos x$ b) $\tan x$	
14.	<b>2005 Q9 P2</b> Given that $\cos 2x^\circ = 0.8070$ , find $x$ when $0^\circ < x < 360^\circ$ (4 marks)	

		<i>Working space</i>
15.	<p><b>2007 Q3 P2</b>  Solve the equation <math>3 \cos x = 2 \sin^2 x</math>, where  <math>0^\circ \leq x \leq 360^\circ</math> (4 marks)</p>	
16.	<p><b>2008 Q16 P1</b>  Solve the equation;  <math>2 \cos 2\theta = 1</math> for <math>0^\circ \leq \theta \leq 360^\circ</math>  (4marks)</p>	

		<i>Working space</i>
17.	<p><b>2008 Q16 P2</b>          Find in radians, the values of <math>x</math> in the interval <math>0 \leq x \leq 2\pi</math> for which <math>2 \cos^2 x - \sin x = 1</math>.          (Leave the answers in terms of <math>\pi</math>)</p> <p style="text-align: right;">(4marks)</p>	
18.	<p><b>2009 Q13 P1</b></p> <p style="text-align: center;"> <math>\frac{\sqrt{3}}{2}</math>          Solve the equation <math>\sin(3x + 30^\circ) =</math>      for  <math>0^\circ \leq x \leq 90^\circ</math>      (4 marks)       </p>	

		<i>Working space</i>
19.	<p><b>2009 Q14 P2</b>  Solve <math>4 - 4 \cos^2 \theta = 4 \sin \theta - 1</math> for <math>0^\circ \leq \theta \leq 360^\circ</math></p>	
20.	<p><b>2012 Q5 P2</b>  Solve the equation <math>\sin(2t + 10) = 0.5</math> for <math>0^\circ \leq t \leq 180^\circ</math>  (2 marks)</p>	



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