

NAME _____ INDEX NUMBER _____

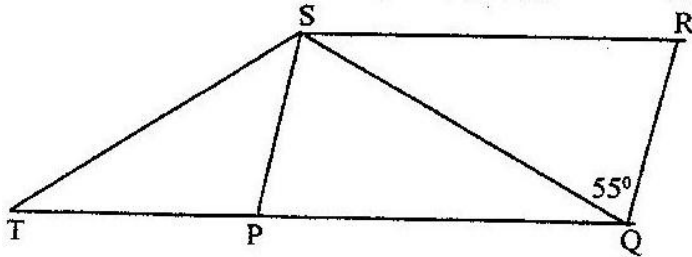
SCHOOL _____ DATE _____

ANGLES AND PLANE FIGURES

	<i>KCSE 1989 – 2012 Form 1 Mathematics</i>	Working space
1.	<p>1989 Q8 P2</p> <p>In the figure below, GJ is parallel to HI and FH is parallel to CJ. Angle AGB = 30°, and angle AHC = 63°. Find angle GCJ (2marks)</p> <div style="text-align: center; margin: 10px 0;"> </div>	
2.	<p>1991 Q10 P2</p> <p>In the figure below AB // DE, $\angle ABC = 70^\circ$ and $\angle CDE = 23^\circ$. Find $\angle BCD$</p> <div style="text-align: center; margin: 10px 0;"> </div>	Working Space

3. **1997 Q3 P1**

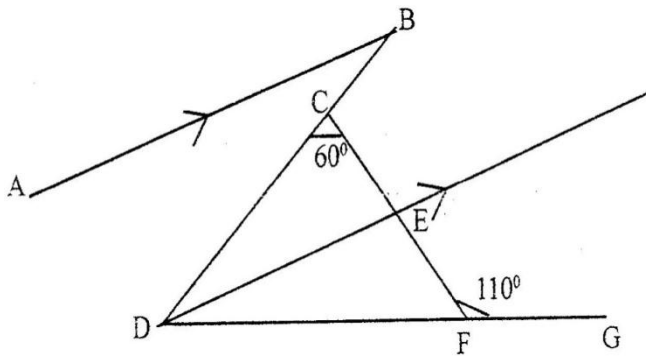
In the figure below PQRS is a rhombus, $\angle SQR = 55^\circ$, $\angle QST$ is a right angle and TPQ is a straight line



Find the size of the angle STQ

4. **1998 Q 4 P1**

In the figure below, AB is parallel to DE, DE bisects angle BDG, angle DCF = 60° and angle CFG = 110°



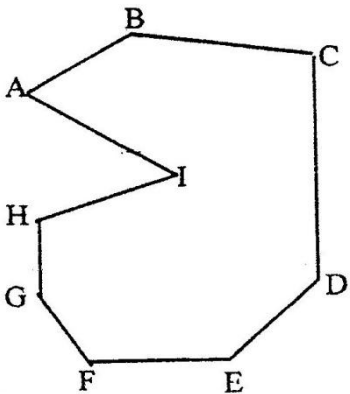
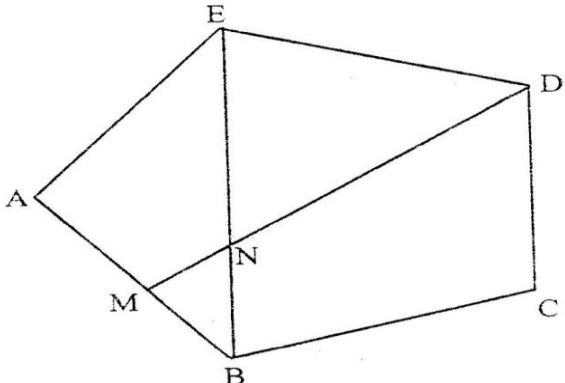
Find

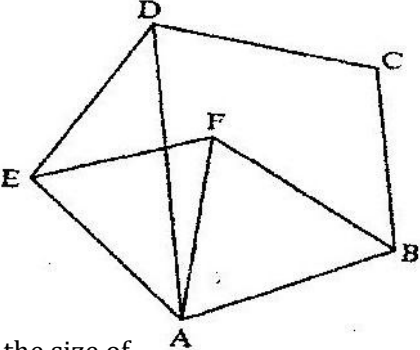
(a) $\angle CDF$

(b) $\angle ABD$

Give reasons for your answers

Working Space

5.	<p>1999 Q 3 P1</p> <p>Find by calculation the sum of all the interior angles in the figure ABCDEFGHI below</p> 	
6.	<p>2000 Q 3 P1</p> <p>In the figure below ABCD is a rectangular pentagon and M is the midpoint of AB. DM intersects EB at N.</p>  <p>Find the size of:</p> <p>(a) $\angle BAE$</p> <p>(b) $\angle BED$</p> <p>(c) $\angle BNM$</p>	
7.	<p>2001 Q 14 P1</p> <p>The interior angles of the hexagon are $2x^\circ$, $\frac{1}{2}x^\circ + 40^\circ$, 110°, 130° and 160°. Find the value of the smallest angle</p>	
8.	<p>2004 Q 2 P1</p> <p>The size of an interior angle of a regular polygon is 156°. Find the number of sides of the polygon.</p>	<p style="text-align: right;">Working Space</p>

9.	<p>2005 Q 5 P1</p> <p>The size of each interior angle of a regular polygon is five times the size of the exterior angle. Find the number of sides of the polygon. (3 marks)</p>	
10.	<p>2006 Q 4 P1</p> <p>In the figure below, ABCDE is a regular pentagon and ABF is an equilateral triangle (1mark)</p>  <p>Find the size of</p> <p>a) $\angle ADE$ (1 mark)</p> <p>b) $\angle AEF$ (1 mark)</p> <p>c) $\angle DAF$ (1 mark)</p>	
11.	<p>2007 Q 2 P1</p> <p>The size of an interior angle of a regular polygon is $3x^\circ$ while its exterior angle is $(x- 20)^\circ$. Find the number of sides of the polygon (3 marks)</p>	
12.	<p>2009 Q 10 P1</p> <p>The size of an interior angle of a regular polygon is $6\frac{1}{2}$ times that of its exterior angle. Determine the number of sides of the polygon (3 marks)</p>	

ANGLES AND PLANE FIGURES MARKING SCHEME

1.	$\angle AHC = \angle DCI = 63^\circ$ $\angle HCB = \angle ABG = 30^\circ$ $\angle G C J = 180^\circ - (30^\circ + 63^\circ)$ $= 87^\circ$ <p style="text-align: right;">1989Q8</p>	2M	8.	$(180^\circ - 156^\circ)n = 36^\circ$ $24n = 36^\circ$ $N = 36^\circ / 24$ $= 15$ <p style="text-align: right;">2004Q2</p>	M1 A1
2	$\angle BCD = \angle CDE + \angle CEO$ $\angle CED = 180^\circ - 70^\circ$ $= 110^\circ$ 133° <p style="text-align: right;">1991Q10</p>	3M	9.	$6x = 3600$ $x = 600$ $(180 - 60)n = 360$ $120n = 360$ $N = 3$ <p style="text-align: right;">2005Q5</p>	B1 M1 A1 3 marks
3.	$SR = RQ ; \angle QRS = 55^\circ$ $\angle SQP = 55^\circ$ ALT to $\angle RSQ$ $\angle STQ = 90^\circ - 55^\circ = 35^\circ$ OR $180^\circ - (90^\circ + 55^\circ) \sqrt$ $= 35^\circ \sqrt$ <p style="text-align: right;">1997Q3</p>	B1 B1 2 marks	10.	a). $\angle ADE = 180^\circ - 108^\circ = 36^\circ$ b). $\angle AEF = (180^\circ - (108^\circ - 60^\circ)) \div 2$ c). $\angle DAE = 108^\circ - (60^\circ + 36^\circ)$ $= 12^\circ$ <p style="text-align: right;">2006Q4</p>	B1 B1 B1 3 marks
4.	(a) $\angle CDF = 110^\circ - 60^\circ = 50^\circ$ (b) $\angle ABD = \angle BDE = 25^\circ$ Both reasoning given and both Reasoning given wrong - ow-1 One reason given (right or wrong) Ow-1 <p style="text-align: right;">1998Q4</p>	A1 B1 1F 3mark s	11.	$3x + (x - 20) = 180^\circ$ $4x = 200^\circ$ $X = 50^\circ$ $(x - 20)n = 360$ $30n = 360$ $n = 12$ <p style="text-align: right;">2007Q2</p>	A1 M1 A1 3 marks
5.	$2n - 4$ right angles $2 \times 9 - 4 = 14$ right angles $14 \times 90^\circ = 1260^\circ$ <p style="text-align: right;">1999Q3</p>	M1 A1 2 marks	12.	Let exterior $\angle = \angle$ at the centre) be x $6.5x + x = 180$ $7.5x = 180$ $X = 240$ No of sides $= 360^\circ / 24$ $= 15$ sides <p style="text-align: right;">2009Q10</p>	M1 M1 1 3 Marks
6.	a) $\angle BAE = 540^\circ = 108^\circ$ b) $\angle BAE = 108^\circ - 36^\circ - 72^\circ$ c) $\angle BNM = 90^\circ - 36^\circ = 54^\circ$ <p style="text-align: right;">2000Q3</p>	B1 B1 B1 3 marks	7.	angle sum of interior angles $= 90(2n - 4)$ $= 90(12 - 4) = 720^\circ$ $2x^\circ + \frac{1}{2}x^\circ + 40^\circ + 110^\circ + 130^\circ + 160^\circ$ $= 720^\circ$ $2.5x^\circ = 720^\circ - 440^\circ$ $2.5x = 280^\circ$ $2.5x = 280^\circ$ $x^\circ = 112^\circ$ smallest angle is $\frac{1}{2}x^\circ + 40^\circ$ $= \frac{1}{2} \times 112 + 40^\circ$ $= 96^\circ$ <p style="text-align: right;">2001Q14</p>	B1 B1 B1 3 marks

