FULL NAME:_____
(BLOCK CAPITALS)

STUDENT NUMBER:_____

4CCM122A Geometry I: Test 1

CALCULATORS MAY NOT BE USED

ANSWER GRID: put a cross in ONE BOX for the correct answer for each question. If you change your mind and want to correct your answer, obliterate your incorrect answer by shading its box, and put a new cross in the box for the correct answer.

	a	b	c	d	e
1					
2					
3					
4					

MARKS: each correct answer = +5, incorrect = −1, none (or more than one) = 0.

Do any rough working on the back of this sheet, or on a NAMED separate sheet. You are strongly advised to draw diagrams.

1. ABC is a triangle. D is a point on BC such that $AB = AD$. $\angle DAC = 17°$ and $\angle DCA = 32°$. The size of $\angle BAD$ is

(a) 64° (b) 98° (c) 17° (d) 82°

(e) none of the above

2. $ABCD$ is a quadrilateral with $AB = DC$ and $AB \parallel DC$
Using standard abbreviations, this information shows that $\triangle ABC$ and $\triangle CDA$ are congruent for the reason

(a) RHS (b) SSS (c) ASA (d) SAS

(e) None of the above

3. AB is the diameter of a circle. O is the centre of the circle and C is a point on the circumference such that $\angle AOC = 100°$.
The size of $\angle OCB$ is

(a) 100° (b) 90° (c) 40° (d) 50°

(e) none of the above

4. $ABCD$ is a cyclic quadrilateral, so that the four points A, B, C and D lie on a circle. The lengths AB and BC are equal. The size of $\angle ABD$ is twice that of $\angle DBC$. Which one of the following statements must be true?

(a) $\angle DAC = \angle DBA$
(b) $\angle DBC = \angle DCA$
(c) $\angle DCA = \angle DAC$
(d) $\angle ADB = \angle BDC$
(e) none of the above

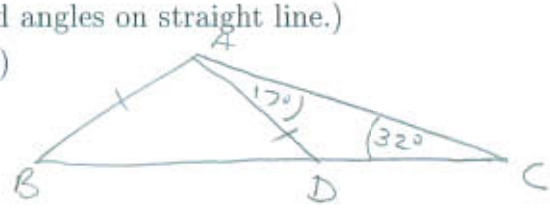
END OF TEST 2008/9

Solutions

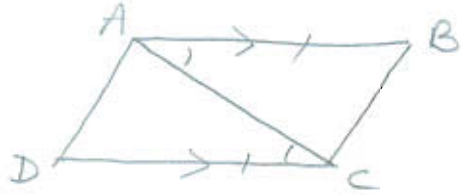
	a	b	c	d	e
1				×	
2				×	
3				×	
4				×	

Note: Your answers, if correct, will *not* have given the above pattern, because (as a guard against cheating) there were several versions of the question paper, with the possible answers arranged in various orders.

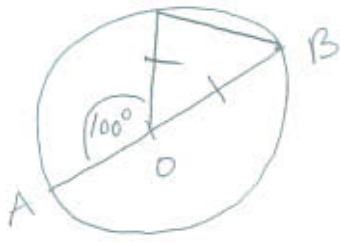
1. (d) $\angle BDA = 17° + 32°$ (angle sum in triangle and angles on straight line.)
$\angle ABD = 49°$ (base angles of isosceles triangle)
$\angle BAD = 82°$ (angle sum in triangle)



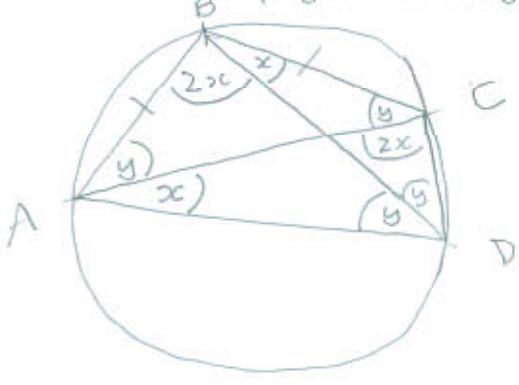
2. (d) In $\triangle ABC$ and $\triangle CDA$
$AB = CD$ (given)
$\angle BAC = \angle ACD$ (corresponding angles)
AC is common.
Hence triangles are congruent SAS.



3. (d) $100° = \angle AOC = \angle OCB + \angle OBC$ (angles on straight line and angle sum in triangle)
$OC = OB$ (equal radii)
$\angle OCB = \angle OBC$ (base angles of isosceles triangle)
Hence $\angle OCB = 50°$.



4. (d) $\angle BAC = \angle BCA$ (base angles of isosceles triangle)
$\angle BAC = \angle BDC$ (angles in same segment)
$\angle BCA = \angle BDA$ (angles in same segment)



F A Rogers—13 October 2008