Mathematics 2260H – Geometry I: Euclidean geometry
Trent University, Winter 2011

Quizzes

Quiz #1. ~~Wednesday, 19~~ Thursday, 20 January, 2011 *[10 minutes]*

1. Given a line segment AB, construct a point C so that B is on AC and the length of AC is twice the length of AB. *[5]*

Quiz #2. Wednesday, 26 January, 2011 *[10 minutes]*

1. Suppose D is the midpoint of the side BC of $\triangle ABC$ and $\angle ADB = \angle ADC$. Show that $AB = AC$. *[5]*

Quiz #2. *Alternate version. [10 minutes]*

1. Suppose D is the midpoint of the side BC of $\triangle ABC$ and $AB = AC$. Show that $\angle BAD = \angle CAD$. *[5]*

Quiz #3. ~~Wednesday, 2~~ ~~Thursday, 3~~ Monday, 7 February, 2011 *[10 minutes]*

1. Suppose that in $\triangle ABC$ and $\triangle DEF$, G and H are the midpoints of BC and EF, respectively, and that $AG = DH$ and $BG = EH$. Use an example to show that the given triangles do not have to be congruent. *[5]*

Quiz #4. Wednesday, 9 February, 2011 *[10 minutes]*

1. Given a line segment AB, construct a quadrilateral with four equal sides, one of which is AB, and a right angle at A. *[5]*

Quiz #5. ~~Wednesday, 16~~ Thursday, 17 February, 2011 *[10 minutes]*

1. Suppose line segments AB and CD each bisect the other at their intersection point E. Show that AC is parallel to BD. *[5]*

Quiz #6. Some day or other. *[10 minutes]*

1. Assuming that the sum of the interior angles of a triangle is equal to two right angles, show that the sum of the interior angles of a (convex!) pentagon is equal to six right angles. *[5]*

Quiz #7. Wednesday, 9 March, 2011. *[10 minutes]*

1. Suppose $ABCD$ is a quadrilateral such that $\angle ABC$ and $\angle BCD$ are right angles. Show that the area of $ABCD$ is equal to $\frac{1}{2}(AB + CD)BC$. *[5]*

Quiz #8. Wednesday, 16 March, 2011. *[10 minutes]*

1. Suppose D, E, and F are collinear points on the side AC, AB, and BC, respectively, of $\triangle ABC$, and $AD = DC$ and $AB = BE$. Compute $\frac{CF}{FB}$. *[5]*

Quiz #9. Wednesday, 23 March, 2011. *[12 minutes]*

1. Suppose O is the orthocentre of $\triangle ABC$, *i.e.* the point where the three altitudes meet. Show that A is the orthocentre of $\triangle OBC$. *[5]*

Quiz #10. Wednesday, 30 March, 2011. *[10 minutes]*

1. Suppose that the orthocentre (where the three altitudes meet) and the incentre (where the three angle bisectors meet) of $\triangle ABC$ are the same point. Show that $\triangle ABC$ is equilateral. *[5]*

Quiz #11. Wednesday, 36 April, 2011. *[10 minutes]*

1. Supose D is the circumcentre of $\triangle ABC$ and D is on the same side of BC as A. Show that $\angle BDC = 2\angle BAC$. *[5]*