Math 45021 Euclidean Geometry Spring 2017
Quiz 4 Matt Alexander
Name: Key Quiz Score: /20

1. Mark as true or false the following statements. Suppose $\triangle ABC$ and $\triangle DEF$ are such that:

A) (T) F In an isosceles triangle the orthocenter and circumcenter both fall on the same median.

B) T (F) The incircle and circumcircle of a triangle coincide if the triangle is equilateral.

C) T (F) The centroid of a triangle is located at the intersection of the triangle's angle bisectors.

D) T (F) The image of a line under any isometry is a circle.

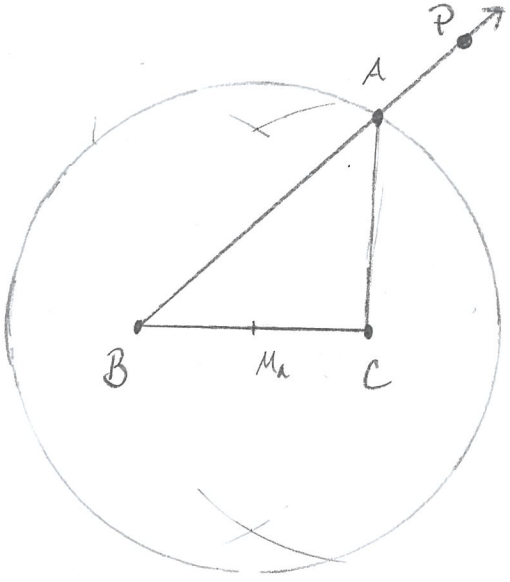
2. Give two possible transformations that would be the inverse of a rotation about O by $\frac{\pi}{2}$.
(i. e. find $R^{-1}_{O,\frac{\pi}{2}}$)

$R_{O,-\frac{\pi}{2}}$ or $R_{O,\frac{3\pi}{2}}$

3. Given $r_a = 2$, $r_b = 3$, and $r_c = 6$ find r.

$\frac{1}{r} = \frac{1}{r_a} + \frac{1}{r_b} + \frac{1}{r_c}$ so $\frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{1}{1}$ or $r = 1$

4. Construct a triangle ABC given the following information $a, \angle B, m_a$.



① Draw segment $\overline{BC}$ of length a

② Draw a ray at B with angle between $= \angle B$

③ Find the midpoint of BC A' or M_a

④ Draw a circle of radius M_a with center M_a

⑤ Label point of intersection of ② & ④ point A.