

Winter Quiz 6

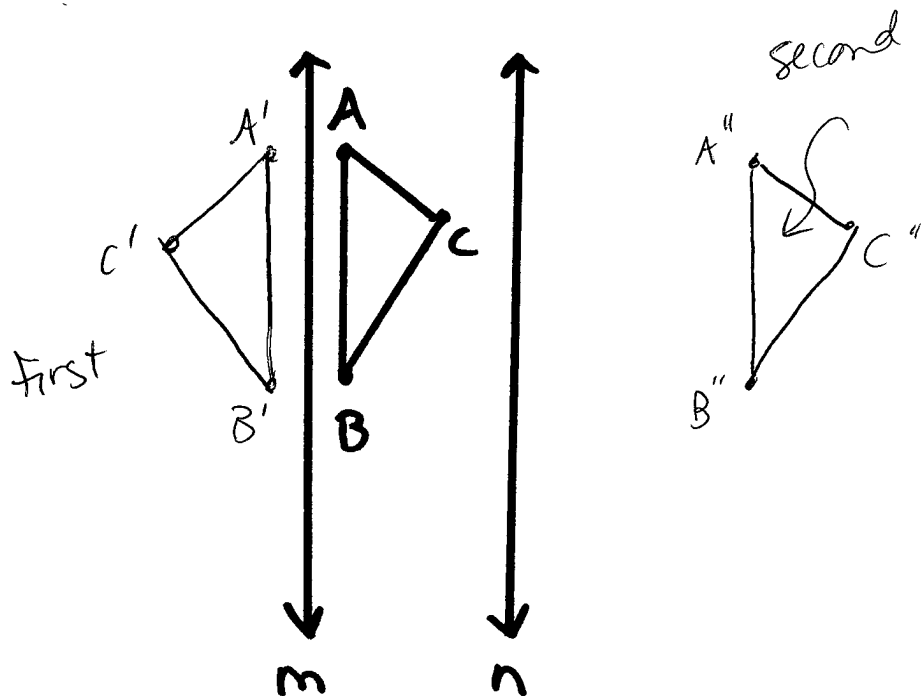
MATH 100:11 Mathematical Concepts
 Instructor: Tara Taylor

March 27, 2012

Name:

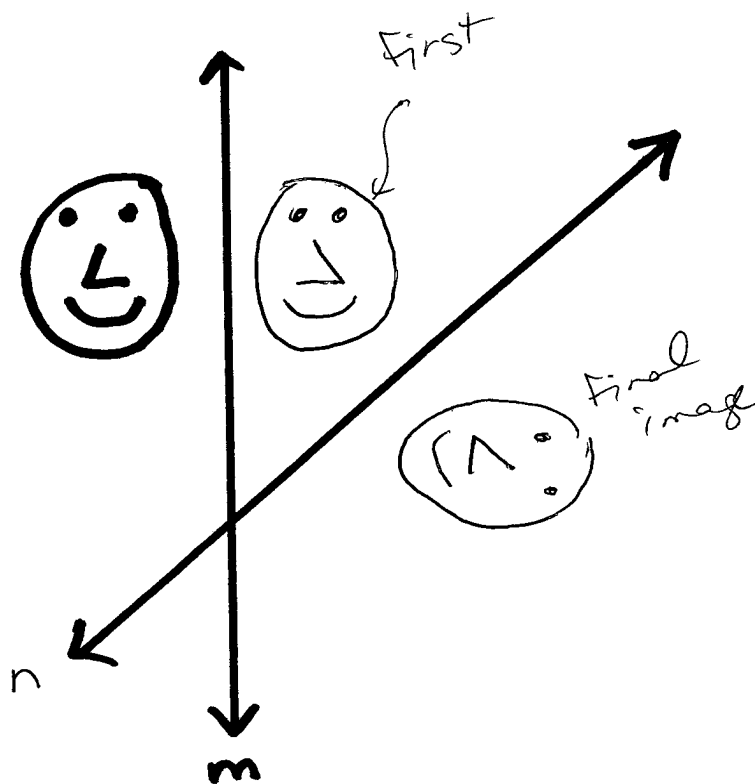
SOLUTIONS

1. Find the image of the object across the two lines of reflection (do m first then n).
 How could you find the final image in one step? [2]



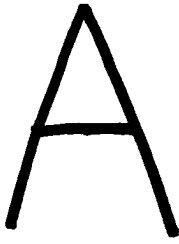
could just
 do a translation
 distance is twice
 the distance
 between m+n

2. Find the image of the object across the two lines of reflection (do m first then n).
 What type of transformation is this equivalent to? [2]

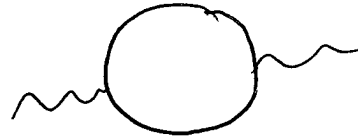


this is equivalent
 to a rotation about
 a center that is the
 inter section of the 2
 lines

3. For the letter A below, draw examples of one object that is topologically equivalent and one that isn't. Explain. [2]



equivalent



hole with 2 legs

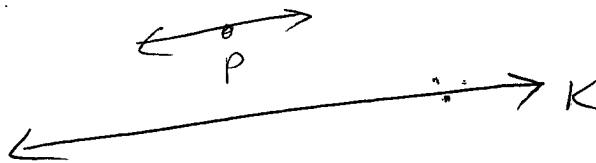
not equivalent



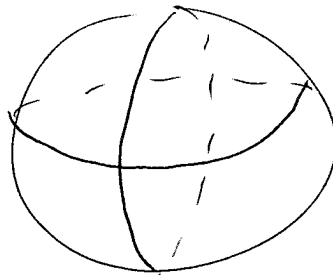
no holes

4. (a) Explain in your own words what Euclid's 5th postulate (the parallel lines postulate) is, and draw a corresponding diagram. [4]
 (b) What would the parallel lines postulate be for spherical geometry? Recall that on a sphere the lines are great circles (circles that have the same center as the sphere). Draw a diagram to explain. [4]

a) Given a line K & a point P not on K , there exists a unique line through P that does not intersect K (it is parallel to K)



b) spherical



All great circles intersect

So given a line K & a point P not on K , there exist NO lines through P that do not intersect K