

Homework #5

1. [3] Find the sum of angles in all “triangles” appearing in figure 9.2.
2. [3] Find the area of a triangle whose angles are 90° , 120° , and 45° .
3. [4] Which area described below is greater? Explain your reasoning.
 - (a) a circle with radius 2 in \mathbb{E}^2
 - (b) a circle with radius 1 in S^2
4. [2] Do exercise 9.7 on page 147 of Week’s The Shape of Space text.
5. [6] Recall that two triangles are similar if the angle measures for each vertex are the same but the side length need not be equal. By contrast, congruent triangles have the same angle and side measures. Can you find similar but not congruent triangles on the sphere?
6. [2] What geometry (sphere or euclidean) is needed in order for the three angles $\frac{\pi}{2}$, $\frac{\pi}{6}$, and $\frac{\pi}{3}$ to form a triangle? Explain your reasoning.