Homework #5

1. [4] Which circle has the greater area? Explain your reasoning.

   (a) a circle with radius 2 in $\mathbb{E}^2$
   (b) a circle with radius 1 in S^2
   (c) a circle with radius 2 in $\mathbb{H}^2$

2. [2] Do exercise 9.7 on page 147 of Week's The Shape of Space text.

3. [4] For each set of angle measures, determine what geometry is needed in order for them to form a triangle.

   (a) $\frac{\pi}{2}$, $\frac{\pi}{6}$, and $\frac{\pi}{3}$
   (b) $\frac{\pi}{6}$, $\frac{\pi}{8}$, and $\frac{\pi}{12}$

4. [3] Find the area of a triangle whose angles are 90°, 120°, and 45°.

5. [7] Make or extend the hyperbolic plane started in class so that there are at least 15 vertices with seven triangles around them.