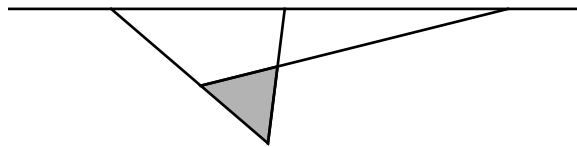


1. Henle 11.17

You are welcome to use the formulas for arclength and area on page 120.

2. Henle 13.3**3.**

- a) Find a plane through the origin that contains the points $(1, 2, 3)$ and $(1, 1, 1)$.
- b) Doing no real work, find a line through the origin that is the intersection of the plane $x + 2y + 3z = 0$ with the plane $x + y + z = 0$.

4. Consider the diagram below of a triangle in a plane, drawn in perspective. Fill the plane with triangular tiles. (Half a rectangle is a triangle....)**5. An abstract projective plane concerns abstract quantities *points* and *lines* and a relation *on* that satisfy the following axioms:**

- Any two distinct points are on a unique line.
- Any two distinct lines are on a unique point.
- There exist a set of four points, no three of which are on the same line.

We will prove that $\mathbb{R}P^2$ satisfies 1) and 2). Show that it also satisfies 3).

6. Henle 13.11