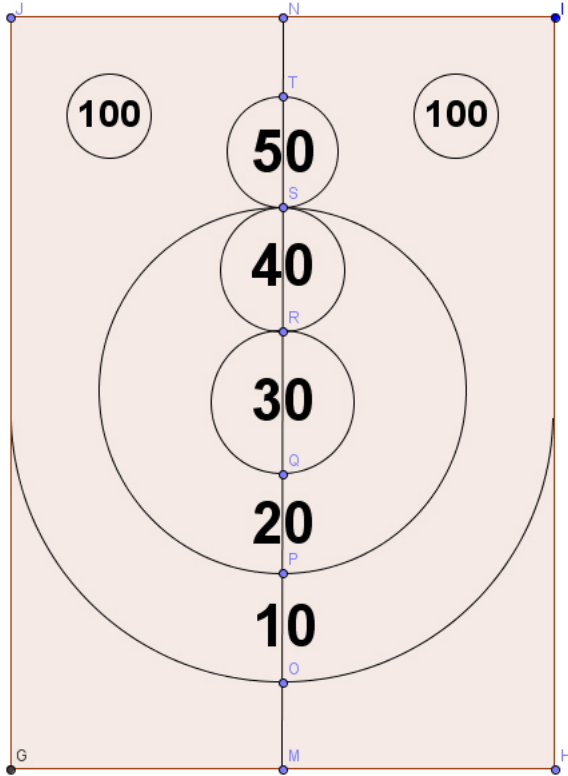


Nested Circles

The goal of skee-ball is to throw a ball down a ramp at a series of holes. You get points based on which hole the ball lands in.



This is a standard layout for the holes, with the following specifications:

1. The area shown is 38" long.
2. The distance from the front of the area to the front of the curve (that is, $m\overline{MO}$) is $4\frac{3}{8}$ ".
3. The distance from the back of the area to the back of the 50 hole (that is, $m\overline{TN}$) is 4".
4. The 20 hole has a radius of $9\frac{1}{4}$ ".
5. The 30 hole has a diameter of $7\frac{1}{4}$ ".
6. The 40 hole has a diameter of $6\frac{1}{4}$ ".
7. The 50 hole has a diameter of $5\frac{3}{4}$ ".

Based on this information, calculate $m\overline{OP}$ and $m\overline{PQ}$.