This department welcomes short notes and problems believed to be new. Contributors should include solutions where known, or background material in case the problem is unsolved. Send all communications concerning this department to Leo Moser, University of Alberta, Edmonton, Alberta.

PROBLEMS FOR SOLUTION

P24. (Corrected) For small n (say $n \leq 10$) obtain sharp upper bounds for the smallest distance determined by n points in or on a unit square. Conjecture: 8 points in or on a unit square determine at least one distance $\leq \frac{1}{2} \sec 15^{\circ}$.

P27. Prove that

$$\sum_{n=1}^{\infty} \sum_{d \mid 2^{2^n}+1,\ d>1} d^{-\frac{1}{2}} < \infty .$$

P. Erdös

P28. Given n compact orientable surfaces $S_1, S_2, \ldots, S_n$ with respective genus $g_1, g_2, \ldots, g_n$. Let S_i be connected with S_j by t_{ij} non-intersecting tubes. Determine the genus g of the resulting closed surface in terms of the numbers g_i and the matrix (t_{ij}).

H. Helfenstein

P29. Prove that for positive integers n,

$$e^{-n}(1 + n + n^2/2! + n^3/3! + \ldots + n^n/n!) = \tfrac{1}{2}\{1 + \sqrt{8/(9\pi n)}(1 - 23\theta_n/180n)\}$$

with $0 < \theta_n < 1$ and $\theta_n \longrightarrow 1$ as $n \longrightarrow \infty$.

E.L. Whitney

P30. Show that every triangle can be dissected into n isosceles triangles for every $n \geq 4$ but that some triangles cannot be dissected into 3 isosceles triangles.

L. Sauvé