Zbl 537.51017
Erdős, Paul
Combinatorial problems in geometry. (In English)
Math. Chron. 12, 35-54 (1983). [0581-1155]

This is a nice conference lecture given by the author at the 17th New Zealand Mathematics Colloquium, Dunedin, 17-19 May 1982. The author talks about some combinatorial problems in geometry, such as the following ones: 1. If you have n points in the plane and every line which goes through two of them also goes through a third then the points all lie on a straight line. 2. If you have n points in the plane, not all on a line and you join two of the points, then you get at least n distinct lines. 3. (Conjecture). If there are n points in the plane, at most $n - k$ on a line, then the number of distinct lines is greater than ckn, for an absolute constant c. 4. If there is an infinite set of points in the plane, such that the distances between any two of them are integers, then all the points lie on a line. 5. (unsolved for $n \geq 6$). It is quite easy to find n points on a circle so that all the distances are integers, but can you find n points in general position no three on a line, no four on a circle, such that all distances are integers?

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Classification:
51E25 Other finite nonlinear geometries
05B25 Finite geometries (combinatorics)
52A37 Other problems of combinatorial convexity
00A07 Problem books