78T-A7 J. DONALD MONK, University of Colorado, Boulder, Colorado 80309. Independent subsets of subsets of free Boolean algebras.

Theorem 1. If $cf\kappa > \aleph_0$ (in particular, if κ is uncountable and regular), A is a free BA, and B is a subset of A with $|B| = \kappa$, then there is an independent subset C of B with $|C| = \kappa$. The theorem does not extend to κ with $cf\kappa = \aleph_0$. Corollary. Any uncountable subalgebra of a free BA has an uncountable free subalgebra. Hence Conjecture (C) of Rotman, Fund. Math. 75, 187-197, is true. This was first noticed by M. Rubin, by an argument essentially proving the corollary. Theorem 2. If $\kappa \geq (2^{\aleph_0})^+$, λ is minimum such that $\lambda^{\aleph_0} \geq \kappa$, λ is regular, A is a free BA, B is a subset of the completion $\bar{A}$ of A, and $|B| = \kappa$, then there is a $C \subseteq B$, $|C| = \lambda$, with C independent. Thus the conclusion holds with $\kappa = \lambda = (\mu^{\aleph_0})^+$, for any μ. Theorem 3. If κ is singular, $cf\kappa \geq (2^{\aleph_0})^+$, $\nu^{\aleph_0} < \kappa$ whenever $\nu < \kappa$, $\nu^{\aleph_0} < cf\kappa$ whenever $\nu < cf\kappa$, A is a free BA, $B \subseteq \bar{A}$, and $|B| = \kappa$, then there is an independent $C \subseteq B$ with $|C| = \kappa$. Thus the conclusion holds under GCH for $\kappa = \aleph_{\omega_2}$. (Received October 6, 1977.)

*78T-A8 R. E. OSTEEN, University of Florida, Gainesville, Florida 32601. A note on maximal rectangles in digraphs and cliques in graphs.

The problem of finding the maximal rectangles of a directed graph can be reduced to that of identifying the cliques of an undirected graph.

Let D be a given (finite) digraph, consisting of a finite nonempty set P of points and a set of directed lines, $L \subsetneq P \times P$. A rectangle in D is a nonempty subset $A \times B$ of L; a rectangle is maximal if it is not properly contained in a rectangle in D.

The undirected graph, $G=(V, E)$, associated with $D=(P, L)$ is defined as follows: $V=L$; if $(a,b) \in L$ and $(c,d) \in L$ then $\{(a,b),(c,d)\} \in E$ in case $(a,b) \neq (c,d)$, $(a,d) \in L$, and $(c,b) \in L$.

Theorem. The family of maximal rectangles of D coincides precisely with the family of cliques of G. (Received September 23, 1977.) (Author introduced by A. R. Bednarek).

*78T-A9 James C. Owings, Jr., University of Maryland, College Park, Maryland 20742. Solution of planar Diophantine equations.

We find all integral solutions of any equation of the form $x^2 + y^2 + z^2 \pm yz \pm xz \pm xy + gx + hy + kz + m = 0$ where g,h,k,m are integers. Every solution to such an equation generates a "plane" of solutions — an infinite triangular lattice of integers in which each atomic triad is a solution. It is shown that an equation of the above type has finitely many such planes. (Received September 26, 1977.)

78T-A10 V. Albis-González, R.K. Markanda, Dpto.Matemáticas, Universidad Nacional de Columbia, Bogotá, Columbia. On the euclideaness of arithmetic principal orders. Preliminary report

Let A be a central simple algebra over an arithmetic field K. Let R be a Dedekind domain with quotient field K, $R \neq K$. Suppose further that A satisfies Eichler condition relative to R. If K satisfies certain conditions given by Queen and Weinberger, then any maximal principal R-order Λ in A is two-sided Euclidean for some algorithm, suited to take care of the divisors of zero.

(Received September 30, 1977.)