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Mathematical statistical mechanics, by Colin J. Thompson, The Macmillian Company, New York, 1972, ix + 278 pp., $15.95.

Statistical mechanics and mathematical problems, Battelle, Seattle, 1971 Rencontres, Edited by A. Lenard, Springer-Verlag, Berlin, Heidelberg, New York, 1973, v + 246 pp., $9.90.

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Among the major scientific issues having a mathematical component, there are a number for which the process of quantification and model building is incomplete (e.g. economics, genetics and ecology). In contrast are issues which can be clearly formulated (but not yet solved) in mathematical terms. Mathematical physics has a particularly rich collection of this second class of problems; we mention the instabilities of plasmas, the singularities of space time allowed by Einstein's equations for general relativity, turbulence, the renormalization of quantum fields, and the theory of critical behavior in statistical mechanics. The importance of these problems to physics is clear. Their importance to mathematics lies in the expectation that their solution will require new developments in–or perhaps even new branches of–mathematics.