Let G and H be two points in the interior of the hexagon such that $\angle AGB = \angle DHE = 120°$. Prove that

$$AG + GB + GH + DH + HE \geq CF.$$

6. Let p be an odd prime number. Find the number of subsets A of the set $\{1, 2, \ldots, 2p\}$ such that
(i) A has exactly p elements, and
(ii) the sum of all the elements of A is divisible by p.

Time Allowed– $4\frac{1}{2}$ hours.

The solutions to these problems are on pp.69-76.

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Research Announcement

OPTIMAL APPROXIMABILITY OF SOLUTIONS OF SINGULARLY PERTURBED DIFFERENTIAL EQUATIONS

R. Bruce Kellogg and Martin Stynes

Using the theory of n-widths, the approximability of solutions of singularly perturbed reaction-diffusion and convection-diffusion problems in one dimension is quantified. Full details appear in [1].

Reference

[1] R. B. Kellogg and M. Stynes, *Optimal approximability of solutions of singularly perturbed differential equations* (1995) (Preprint 1995 3, Mathematics Department, University College Cork).

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