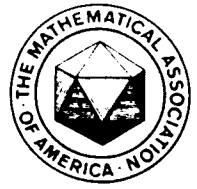


MICHIGAN MATHEMATICS PRIZE COMPETITION

AN ACTIVITY OF THE MICHIGAN SECTION OF THE MATHEMATICAL ASSOCIATION OF AMERICA



DIRECTOR

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Dear Math Exam Supervisor:

Listed below is the answer key to the 31st Annual Michigan Mathematics Prize Competition, Part I, given on Wednesday, October 7, 1987.

ANSWER KEY

1-B	9-B	17-D	25-E	33-B
2-E	10-D	18-D	26-B	34-C
3-D	11-A	19-E	27-C	35-D
4-D	12-C	20-C	28-C	36-D
5-D	13-B	21-E	29-A	37-C
6-A	14-C	22-A	30-C	38-D
7-C	15-A	23-C	31-C	39-E
8-A	16-D	24-A	32-E	40-C

HINTS

19. Consider the graphs of $y = 2^x + 1$, $y = 5^{-x}$.
22. The smallest prime factor of an even number is 2.
24. Use $(a^b)^c = a^{bc}$, then take logs (base a).
26. Find the repetitive pattern for the last digits of powers of 7.
37. Consider the right triangle whose hypotenuse is the segment joining the centers of the two circles, and whose legs are horizontal and vertical.
40. First: construct the radii at the points of tangency to AB (extended) and AC (extended).

We thank you for your participation in this year's Competition.

Daniel A. Moran, Director