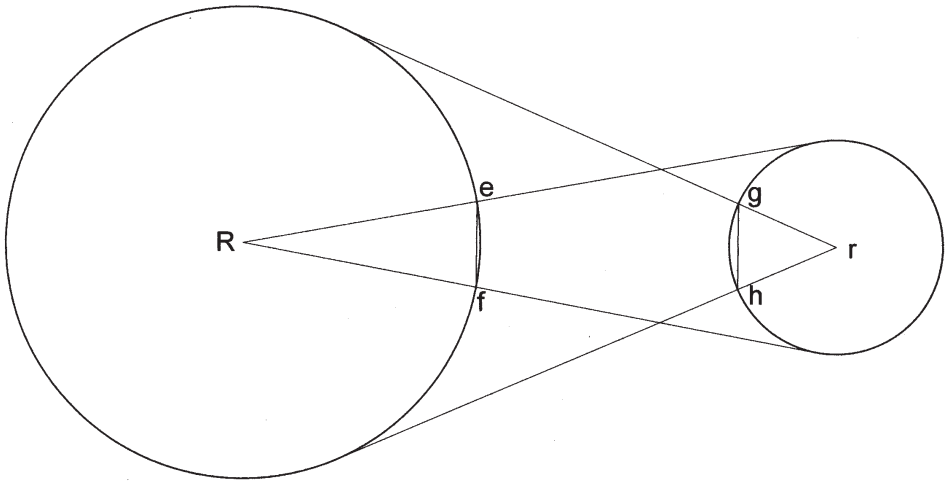
Problem 138

by Dave Lindell, L.S.



Two circles of radius 205.80′ and 93.22′ have centers 514.59′ apart as shown. Lines drawn from the centers of each circle tangent to the other circle cut the circles at points e, f, g and h. What are the lengths of chords e-f and g-h?

Problem 139

by Benjamin Bloch, Ph.D.

Every positive number can be placed in one of nine columns headed by the single digits **1** through **9**.

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45

Review: *We can immediately find the single digit column heading of every positive number by adding the digits in that number until a single digit is obtained. To indicate that we are reducing a number to its single digit column we write it as: 137=>11=>**2**. Thus, the number 137 falls under the column headed by the single digit **2**. The final digit is called the SDQ or single digit quality.*

Without doing the actual operations, show that the following answers must be *incorrect*:

a) 23 x 186 =? 4,378
b) 47 x 392 x 11,553 x 135,678 =? 28,879,297,696,016
c) 3.14159 x 0.0687442 =? 0.215976091278
d) (5,387 x 19.0045) + (0.001866 x 101.468) =? 102,477.430839288

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