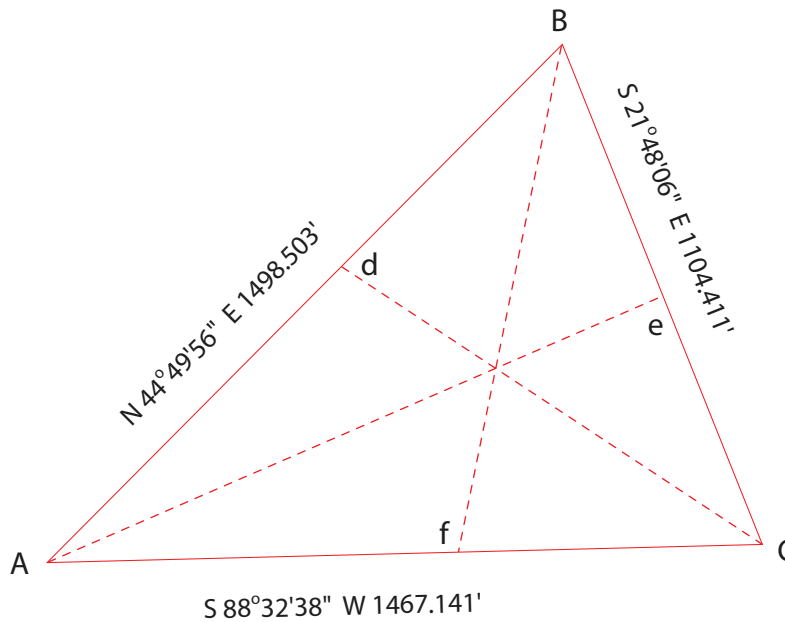


problem corner | by Dave Lindell and Benjamin Bloch

Problem 134

by Dave Lindell, L.S.



Lines Ae, Bf and Cd are angle bisectors in the triangle shown.
 What is the ratio of Be to Ce compared to the ratio of AB to AC?
 Cf : Af compared to BC : BA?
 Ad : Bd compared to AC : BC?

Problem 135

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

You can immediately find the single digit column heading every positive number by adding the digits in that number until a single digit is obtained. To indicate that you are reducing a number to its single digit column you write it as: $137 \Rightarrow 11 \Rightarrow 2$. 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.

Incorrectness addition rule: The SDQ follow the same addition properties as with the complete numbers. For example, since $4 + 3 = 7$, then any number in the 4 column when added to any number in the 3 column must add to a result that is in the 7 column. If it does not, then the addition is **incorrect**.

- A) Which column number when added to any column number does not alter its SDQ or single digit quality?
- B) What do all of the following have in common: straight line, right angle, triangle, square, circle, pentagon, and hexagon?
- C) The radius of the earth is approximately 3,960 miles. The radius of the moon is approximately 1,080 miles, and the radius of the sun is approximately 432,162 miles. What do they have in common?
- D) Give an example of why the SDQ operation can only be used to verify an incorrect result.

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