Sine Product Problem

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Dear Sir,

I have been interested in the problem of finding three angles, the product of whose sines is $\frac{1}{8}$, since the problem concerning one such example appear in the *Journal* (Vol. 11, No. 3 — March, 1964 — Problem 212). Using the IBM 7040 computer in my school, I came up with the following fact which I thought would interest you.

There are exactly eight sets of angles (each of which is a multiple of one degree) which satisfy

$$\sin A^\circ \cdot \sin B^\circ \cdot \sin C^\circ = 1/8.$$

They are:

A	B	C
30	30	30
54	30	18
54	48	12
63	27	18
70	50	10
75	30	15
81	54	9
84	24	18

Actually

$$\sin A^\circ \cdot \sin B^\circ \cdot \sin C^\circ = 0.1250000,$$

but I am confident that this is enough accuracy to rule out a coincidence. Each case, though, should be checked by trigonometric means.

Editor's Note: Is the computer accuracy sufficient to rule out a coincidence? The challenge in Stanley's last sentence should be emphasized.

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