

Problem of the Week

Proposed by Bernardo Ábrego and Silvia Fernández

November 27-December 4

A mathematics teacher wants her two intelligent students \mathcal{B} and \mathcal{S} to derive the exact value of a 2-digit natural number by revealing the number of positive divisors of n to \mathcal{S} and the sum of the digits of n to \mathcal{B} . A brief conversation follows between \mathcal{S} and \mathcal{B} :

\mathcal{B} : I cannot determine n .

\mathcal{S} : I can't either but I know whether n is even or not.

\mathcal{B} : Now I know what n is.

\mathcal{S} : So do I!

Assuming both the students are honest and that their statements are backed by perfect logical reasoning, determine n and justify.

This contest is sponsored by the Mathematics Department. Open to all CSUN students. Winner gets \$5 or an equivalent prize. All complete and correct solutions get a certificate. Type and send your solution before December 4th, 9:00PM to silvia.fernandez@csun.edu. All steps of the solution must be clearly justified. For rules, winners, solutions, and more information visit: www.csun.edu/math/probweek