

## Problem 1: Zeb Rolling

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Zeb rolls two, fair, six-sided dice. Calling the product of the two dice  $P$  and their sum  $S$ , he then solves the equation  $x^2 + P = Sx$ . He records both solutions, recording the root twice if it happens to be a double root. What is the expected value of all the solutions he finds?

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

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Posting Date 8/27/2019. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by noon on 9/7/2019.