

## Problem of the Week-6: Guess the Missing Digit

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Ask someone to think of a 6-digit number  $N$ . Then have them reverse the order of digits, call the reversed number  $M$ . Have the person calculate the difference  $D = |M - N|$ , and give you all but one of the digits in  $D$  (it can be any digit of their choice they withhold). You should be able to determine the missing digit.

Explain clearly how you find the digit and give the reasoning behind your answer.

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Posting Date 11/08/11. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 11/18/11.