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Regulars

## Solution to "Three-digit numbers"



When we write a three-digit number in base-ten we are really saying "so many hundreds", "so many tens" and "so many units". If our number is  $n$  and the digits are represented by  $x$ ,  $y$  and  $z$  (reading from left to right) then we can write:

$$n = 100x + 10y + z$$

We are told that

$$y = x + z$$

Therefore

$$n = 100x + 10(x + z) + z$$

$$n = 110x + 11z$$

$$n = 11(10x + z)$$

therefore  $n$  must be divisible by 11!

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