

# **Random Interesting Math Tricks** (more importantly, how do they work)

***HWW Math Club 11/28/2011***

The background of the slide features a series of flowing, wavy lines in shades of red and pink, creating a sense of movement and depth. The lines are smooth and curved, with some areas appearing more saturated than others, giving it a dynamic and artistic feel.

# Does a number divide 2, 5, 10?

Devise a method to determine if some number, for instance 185924, is divisible by 2, 5, and 10 respectively.

**Just look at the last digit!**

# Does a number divide 3, 9?

**Devise a method to determine if some number, for instance 185924, is divisible by 3 and 9 respectively.**

**Add up the digits. It's divisible if the sum of digits is divisible.**

# Does a number divide 6, 15, 18, 45?

**Devise a method to determine if some number, for instance 185924, is divisible by these numbers.**

**Combine the divisibility tests. If it's divisible by 2 and by 3, it's divisible by 6.**

# Does a number divide 11?

Devise a method to determine if some number, for instance 1362075, is divisible by 11.

Sum up alternating digits:  $5-7+0-2+6-3+1 = 0$ .

# Does a number divide 7 or 13?

Devise a method to determine if some number, for instance 10663786, is divisible by 7 or 13.

Sum up alternating triple digits:  $786 - 663 + 10 = 133$  which is divisible by 7 but not 13.

# Last one is slightly different

**If I have some money in the bank with compound interest of  $n\%$  a year (compounded frequently), how long does it take for my money to double?**

**Divide it from 72. If it's 3%, it takes about  $72/3 = 24$  years to double.**