Penny Trick (Extra Credit 2 – Due Monday 11/26)

✓ Start with 18 pennies. Volunteer come forward, I give them all of the pennies
✓ I ask them to take a few (1, 2 or 3) pennies and put them in their pocket but not to let me know how many
✓ I then ask them to add the sum of the digits of the number of pennies they have left (give them an example, if they have 21 pennies, they get $2 + 1 = 3$) and to remove this many pennies and put these in their pocket.
✓ I finally ask them to put a few pennies on the table (I count them secretly, this is $x$)
✓ I compute $9 - x$ to get the number of pennies in their hand.
✓ WHAT IS THE TRICK? WHY DOES 9-x TELL YOU HOW MANY PENNIES ARE IN THE PERSON'S POCKET?