

Nerdo the Mathnificant The Ring

Overview

This trick is once again based on algebra but it takes it one step further in the complexity of the algebra. It is not difficult but is very impressive and can be used with any number of people.

Materials

Paper and pencil

Cheap plastic ring to put on a finger

Handout/overhead of steps

Steps

1. Count off the people in the room. Make sure each person knows their number.
2. Give an ugly plastic ring to one person and instruct them that when Nerdo leaves the room they are to put it on some one's finger. Make sure everyone knows which number the person is, which hand they have it on and which finger they have it on (thumb=1 pointer= 2, etc)
3. Nerdo leaves.
4. Pick a volunteer to the follow steps at table.
5. Tell the V to multiply the person number by 2.
6. Add 3
7. Multiply by 5
8. If the string is on the right hand add 8
If the string is on the left hand add 9
9. Multiply by 10
10. Add the number of the finger
11. Add 2
12. Tell Nerdo the number. Possibly write on overhead.
13. Nerdo subtracts 222 from the number
14. The ones digit tells you the finger. The middle digit tells you the hand (2=left, 1=right).
The other digits tell you the person number.
15. Let students experiment with the solution.

Math

4. $n = \text{person number}$
5. $2n$
6. $2n + 3$
7. $5(2n + 3) = 10n + 15$

8. Left
 $10n + 15 + 9 = 10n + 24$
9. $10(10n + 24) = 100n + 240$
10. $100n + 240 + 1 = 100n + 241$
 $100n + 240 + 2 = 100n + 242$
 $100n + 240 + 3 = 100n + 243$
 $100n + 240 + 4 = 100n + 244$
 $100n + 240 + 5 = 100n + 245$
11. $100n + 243$
 $100n + 244$
 $100n + 245$
 $100n + 246$
 $100n + 247$
13. $100n + 21$
 $100n + 22$
 $100n + 23$
 $100n + 24$
 $100n + 25$

8. Right
 $10n + 15 + 8 = 10n + 23$
9. $10(10n + 23) = 100n + 230$
10. $100n + 230 + 1 = 100n + 231$
 $100n + 230 + 2 = 100n + 232$
 $100n + 230 + 3 = 100n + 233$
 $100n + 230 + 4 = 100n + 234$
 $100n + 230 + 5 = 100n + 235$
11. $100n + 233$
 $100n + 234$
 $100n + 235$
 $100n + 236$
 $100n + 237$
13. $100n + 11$
 $100n + 12$
 $100n + 13$
 $100n + 14$
 $100n + 15$

Example

4. person number is 23, hand is left and on the 4th finger
5. $2(23) = 46$
6. $46 + 3 = 49$
7. $5(49) = 245$
8. $245 + 9 \text{ (left)} = 254$
9. $254 * 10 = 2540$
10. $2540 + 4 \text{ (4th finger)} = 2544$
11. $2544 + 2 = 2546$

13. $2546 - 222 = 2324 = 23^{\text{rd}}$ person on left hand 4th finger

The Ring Instructions

1. Multiply the person number by 2
2. Add 3 to the answer
3. Multiply the answer by 5
4. If the ring is on the right hand add 8
If the ring is on the left hand add 9
5. Multiply by 10
6. Add the Number of the finger
(thumb = 1, pointer =2, etc)
7. Add 2
8. Tell Nerdo the number