Making Magic Prize List

An Interesting Addition Property

6	1	3
4	8	7
+ 2	+ 3	+ 2
12	12	12

Pick any 3 single digit numbers whose sum is 12.
Select 2 more sets of 3 numbers whose sums are 12.
The first set selected is shown in **red** and
the next 2 are shown in **blue** and **black.**

We will now create **three 2 digit numbers** by placing the 3 digits from **any set** of 3 numbers shown above in the ones places in **any order** and then placing the 3 digits from **any other set** of 3 numbers shown above in **any order** in the tens places.

When you find the total of those four 2 digit numbers **the total will always be 132**

Examples

1	1	1
1 6	4 8	4 6
8 4	6 1	7 4
+ 3 2	+ 2 3	+ 8 2
132	132	132

A Proof of the Property using 2 general sets of numbers.

a	d
b	e
+ c	+ f
12	12

Pick any 3 single digit numbers whose sum is 12
Select a second 3 single digit numbers whose sum is 12.
The first set selected is shown in **red** and
the next set is shown in **blue**.

1	
d a	
e b	
+ f c	
2	

The sum of any order of **a, b and d** will be 12.
If the **a, b and c** are in the ones column that
means the sum will have a **1 in the ones place**
and a **carry of 1 to the tens place.**

1	
d a	
e b	
+ f c	
132	

The sum of any order of **d, e and f** will be 12.
If the **d, e and f** are in the tens column that
means the sum of the tens column will be **12 and**
the added carry of 1 will total 132.

Note: The **a, b, and c** could have been in any order for the one column to total 12.
The **d, e, and f** could have been in any order for the one column to total 12.

Rule. If the tens and ones columns are composed of numbers that have a 2 digit total of x y (where y is in the ones place and x is in the tens place) Then the total of the number will be (xy +1) B

How do we turn this information into a Magic Trick ?

Where we are at:

1. We have 3 sets of single digits numbers that all have the same total. Our example used 12.

6	1	3
4	8	7
+ 2	+ 3	+ 2
12	12	12

Pick any 3 single digit numbers whose sum is 12.
Select 2 more sets of 3 numbers whose sums are 12.
The first set selected is shown in **red** and
the next 2 are shown in **blue** and **black.**

2. Create an addition problem where the ones column of that number is composed of one of the sets and the tens column of that number is composed of one of the other sets. The answer to the addition problem is known in advance. In our case it is 132.

1	1	1	1
1 6	4 8	3 6	3 3
8 4	6 1	7 4	2 1
+ 3 2	+ 2 3	+ 2 2	+ 7 8
132	132	132	132

3. Give 1 student one of the 3 sets of numbers and have them find that their numbers total 12. Have the other 2 students create 3 numbers for an addition problem. One set will be placed in the one's column and the other set of numbers will be placed in the tens column sing their numbers and find that the total is 132.

4. Find a way to connect the two outcomes in a manner that it looks like one of the sum predicted the other.

Example: Prize List

Create a list of at least 12 prizes and have the price of each prize listed next to it. Have all the prices for the prizes be over $1.32. Have an incredible prize you want the students to win listed in the 12th place and list it's price as $1.32.

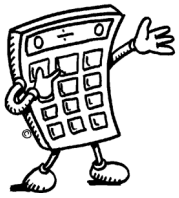
Have the 2 students create 3 numbers for an addition problem. One set will be placed in the one's column and the other set of numbers will be placed in the tens column sing their numbers and find that the total is 132. State that the humber must be a dollar amount so it must be $ 1.32. That is the amount of money they have to buy a prize. Read off a couple of great prizes and note that they cannot afford any of them. Have the student with the prize list add the numbers in their addition problem and get 12. Have the the student with the prize list to look at prize number 12 and call out the price of that prize. The 12th prize costs $ 1.32 and is the best prize on the list.

Prize List

All 3 students will each get one of the following prizes depending on the amount of money they win.

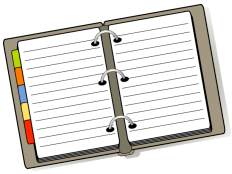
1. A new pair of tennis shoes $ 22.37

2. A scientific calculator $ 19.12



3. 2 free movie tickets $ 19.50

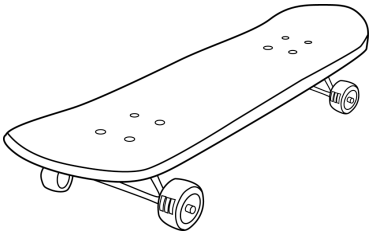
4. 4 pack of school notebooks $ 4.17



5. 1 week free buss pass $ 4.17

6. A new school backpack $ 42.97

7. New skate board $ 33.75



8. 1 week free school lunches $ 10.50

11. 1 month free haircut $ 54.25

12. No homework for a year $ 1.32

Preparation.

1. Take 9 playing cards. One 1, two 2's, two 3's, a 4 , 6, 7, and an 8. If you do not like using playing cards then use nine 3 by 5 note cards and write the numbers on them. Put a line under the 6 so the card does not get turned around and look like a 9. If you have number flash cards for classroom use they work very well.

2. Print out the prize list.

3. If you have a white board at the front of the class and a marker that will work well. If not have a sheet of paper and a marker on the table.

4. Put the 9 cards on the desk in the following order **6, 4,2** and **1, 3, 8** and **3, 7, 2. The numbers on the cards will all be black. The colors are there for your use in following the presentation.**

Presentation:

1. Ask 3 students to come to the front of the class. Pick up the prize list and open it. Have you hand covering the bottom corner where the 12th prize is listed. Point out some of the items on the list and read aloud some of the most interesting items and their price. Tell the students that **all 3 of the students will get to buy one of the prizes depending on the amount of money they win.**

2. Tell one of the student they will help select which prize the students can win and the other two students will help determine how much money they have to spend. Fold the price list closed and hand the student the price list.

3. Pick up the stack of cards and deal the cards out to form 3 piles. Deal out the top 3 cards in one pile, the next 3 in a 2nd stack and the last 3 in a 3rd stack. Ask a student to select one of the stacks of 3 cards and tell them they will be in charge of the prize list. Hand that student the list and the 3 cards they chose.

4. Tell the 2 student remaining that they will determine the amount of money they will have to purchase their prize. Explain that they will use the numbers on the cards they hold to m 3 twi digit numbers. They will then add those three 2 digit numbers together to get a total amount. Ask one of the student if they want to have the numbers on their cards to be places in the ones or tens column. Whichever one they chose tel the other student they their numbers will be used in the other column.

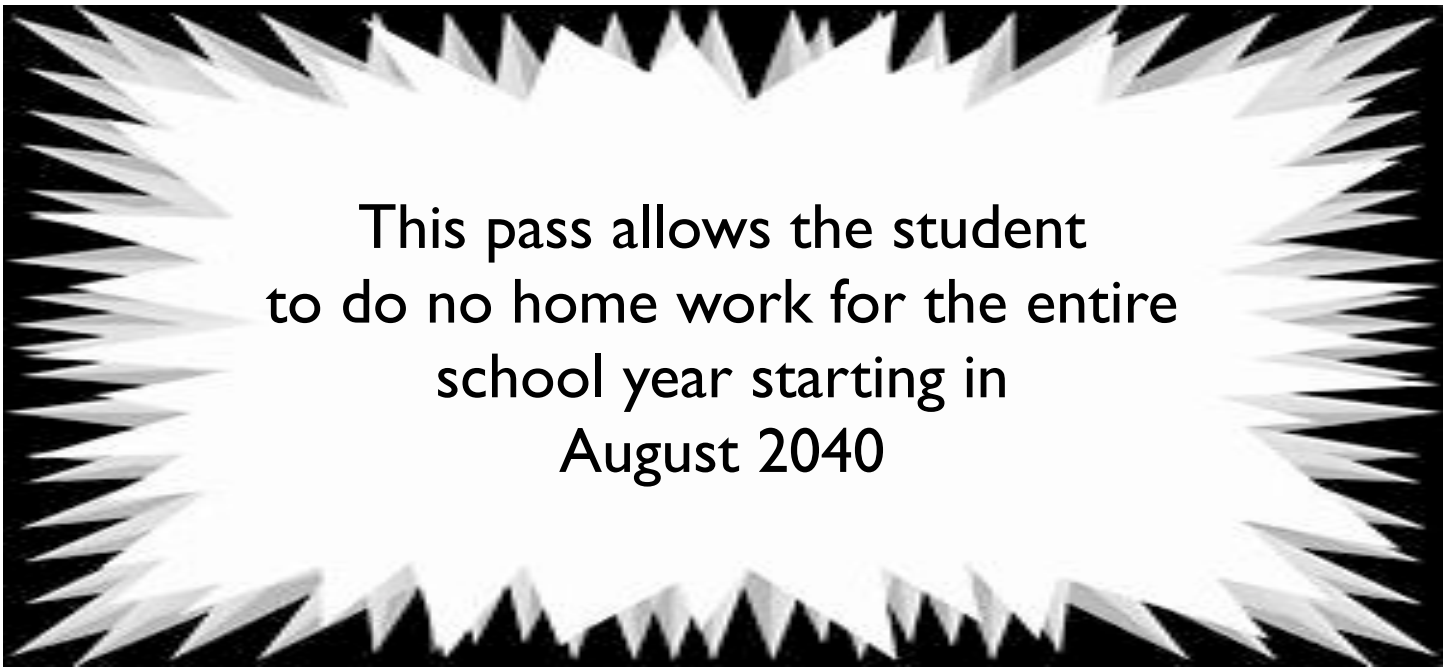
5. Get a paper and pen or use the white board. Ask the student with the cards that will go in the ones place to hold up any of their 3 numbers. Take the card from the student and then write down the number at the top of the page. Ask the student with the cards that will go in the tens place to hold up any of their 3 numbers. Take the card from the student and then write down the number to the left of the first number creating a two digit number. Repeat this until you have three 2 digit numbers.

4. Remind the class that each student had a free choice of what stack they selected. They had a free choice of putting their numbers in the 1's or 10' s place. Draw a line under the 3 two dight numbers and ask one of the 2 students to find the total of the 3 numbers. (check their work). Ask them the total. They will say 132. Take the paper and say we need this to be in dollars and cents so we will add a decimal pout. Add a $ sign and a decimal points and show the class that the total amount they have to spend is $1.32. (you may add that this is not much money so you may not want to het your hopes up).

5. Ask the student in charge of the menu to add up the total of his 3 cards and call out the total. (it will be 12). State that it is not time for this student to look at the menu and see what prize is in the 12th position and see if the students have enough money to but it. Have them read off the prize in the 12th position and the cost. They will see they had the best prize and it was the only one they could afford.

1	1
16	16
84	84
+32	+32
132	$ 1.32

NOTE: You will need to dampen their joy by handing each of them a copy of the pass below.



Handing out the numbers.

The method suggested in the description is easy and works well. Just put the stack in order and give the top 3 to the 1st student and the next 3 to the 2nd student and the last 3 to the 3rd student.

Alternate handling 1: You can improve this by having 4 sets of cards that all have a total of 12. Just put the stack in order of the 4 sets. Take out the stack and then deal out 4 stacks on the table. As each student comes up let them select a stack. This leaves a last stack that is unused. This seems even more random.

Alternate handling 2:

This looks a lot better but does require a switch. I have the material in a box on the table. I place 2 identical stacks in the box. When I start the trick I take out one pile and shuffle it. I then reach in the box to take out the prediction envelop or the board and when I do I drop the mixed stack and pick up the second stack and then proceed from there.

My method.

I use 12 number cards. 4 sets of 3 cards that each have a sum of 12. I have them shuffled and then do a switch as I reach for the prize list. I deal out 4 piles, one card per pile until 4 piles have 3 cards. The 3 students then select their own pile and see that one extra pile is left unused when the trick is complete.

History:

The fact that the numbers in a column can be in any order add still have the same sum must have been known several hundreds of years ago. The fact that if each column has the same sum you can product the total in advance is surly more recent but must also be quite old. In recent times many performers have used of this math fact to good use to force an outcome and then revel the outcome in various ways.

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