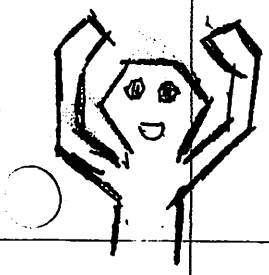
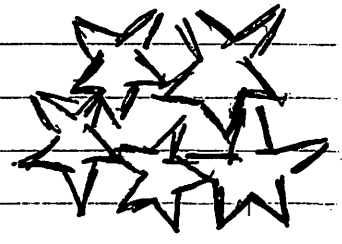


Student B

7-2
1-12-10

Number Trick

Yes, Jessie's two answers always will be equal to eachothers for any number. This trick works because when you multiply the number before adding and you add after, the number in the second set would have to add a higher numbers.



Student C

Number Trick

Jessies number trick will work because for numbers 1-10 for many reasons. First because when she doubles the result first, 5x2=10 instead of adding 4 first she would have had 8 (4x2=8) when she doubled the number 5+4=, 9x2=

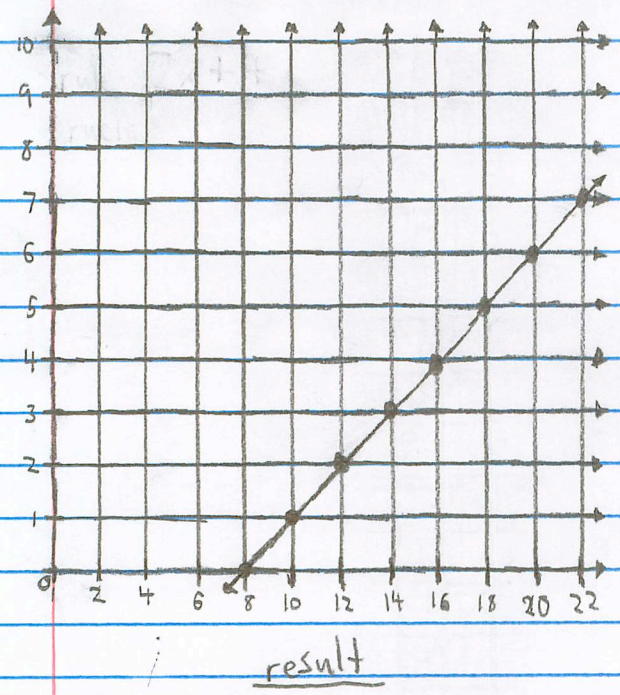
Jessie lastly, in the 2 equation, broke down the first equation, when she added 8 she might have imagined first that 8=4x2 which she did in the first equation when she added the 5+4 and the doubled it, but you must realize that 4 is still part of the equation even though it was smushed in with 5, you did double 4 but when it was part of the 5.

Student G

Number Trick Task

Number	5	6	7	8	9	10
x+4x2	18	20	22	24	26	28
Xx2+8	18	20	22	24	26	28
x	+2	+2	+2	+2	+2	+2

-1	-2	-3	-5
6	4	2	-2
6	4	2	-2



← 2x+8

← 2(x+4)

In this "Number Trick Game," the creators had equations that were written differently but came up with the same result. This occured becuse the equations were just in parentheses or not.

Student F

$2(4+n)$ Equation for the first one. n= A #
$5\times2+8$ Equation for the second one. you think
$2n+8$ Try other #s of.

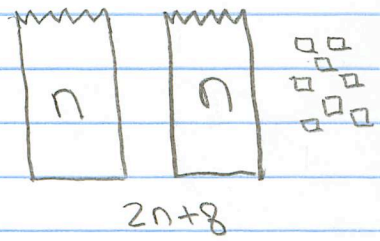
n	+4	×2
3	7	14
8	12	24

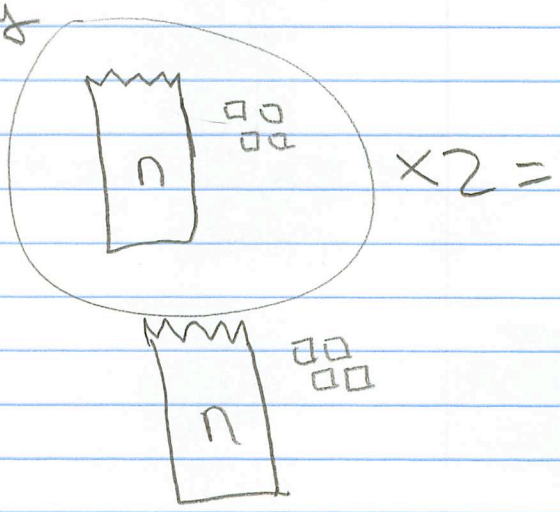
$(4+4)2=16$
$(-3+4)2=2$
$(120+4)_2=248$

n	×2	+8
3	6	14
8	16	24

$4\times2+8=16$
$-3\times2+8=2$
$120\times2+8=248$

Yes it is always the same numbers because in my data, both equations get the same numbers whatever n is. It works on all numbers. This happens because these rules are the same but written differently





Student I

Number Trick Task

(This class "knew" the distributive property.)

Jessie discovers a cool number trick. She thinks of a number between 1 and 10, she adds 4 to the number, doubles the result, and then she writes this answer down. She goes back to the number she first thought of, she doubles it, she adds 8 to the result, and then she writes this answer down.

Here is an example:

Jessie thinks of the number. 5
She adds 4 to her number. $5 + 4 = 9$
She doubles the result. $9 \times 2 = 18$
She writes down her answer. 18

Jessie goes back to the number she thought of. 5

She doubles her number. $5 \times 2 = 10$
She adds 8 to the result. $10 + 8 = 18$
She writes down her answer. 18

Will Jessie's two answers always be equal to each other for any number between 1 and 10? Explain your reasoning. (Go beyond to why it works)

Equation 1.) $(x+4)2 = 2 \cdot 4 + 2x = 8 + 2x$ Substitution, commutative property
Equation 2.) $(2x)+8 = 8+2x$

Yes, Jessie will get the same answer for both every time because the two equations are the same

Does your explanation show that the two answers will always be equal to each other for any number (not just numbers between 1 and 10)? Explain your answer.

How could you justify why the trick works every time?

Yes, because the equations are equal.

$x = 40$

$\frac{2(40+4)}{2} = \frac{2 \cdot 40 + 8}{2}$

$\frac{20+4}{-\ 4} = \frac{20+4}{-\ 4}$

$\frac{20}{-20} = \frac{20}{-20}$

$0 = 0$