Features of Cross Number Puzzles
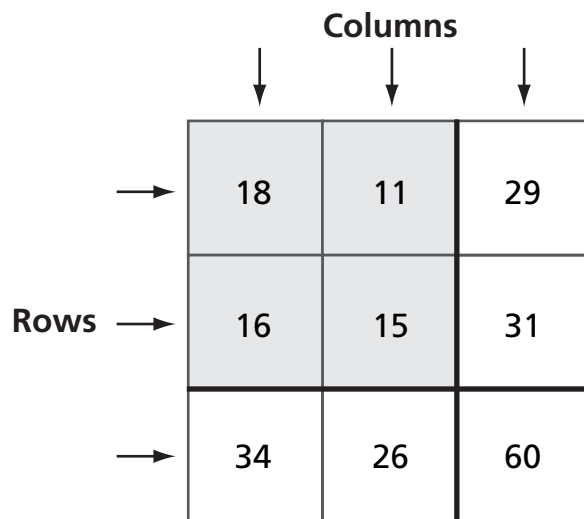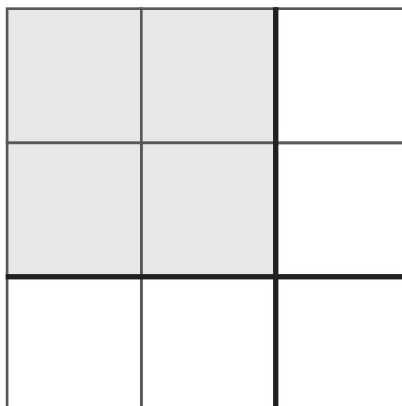
In a complete Cross Number Puzzle, the total values on each side of the thick line must be equal.

Columns

18	11	29
16	15	31
34	26	60

Rows →

Use 2-digit numbers in the shaded boxes to make up your own Cross Number Puzzle. Then complete your puzzle.

Rotated Cross Number Puzzles

You know that quantities on opposite sides of the thick lines are equal, no matter where the thick lines may be in the puzzles.

Write 2 addition sentences and 2 subtraction sentences that match the numbers for some rows and columns in each completed puzzle. Use a different row or column for each sentence.

1

300	51	351
100	58	158
400	109	509

$100 \; (+) \; 58 = 158$

_____ $(+)$ _____

$351 \; (-) \; 51 = 300$

_____ $(-)$ _____

2

74	19	55
43	25	18
117	44	73

_____ $(+)$ _____

_____ $(+)$ _____

_____ $(-)$ _____

_____ $(-)$ _____

3

217	74	143
126	45	81
91	29	62

_____ $(+)$ _____

_____ $(+)$ _____

_____ $(-)$ _____

_____ $(-)$ _____

4

85	125	210
36	58	94
49	67	116

_____ $(+)$ _____

_____ $(+)$ _____

_____ $(-)$ _____

_____ $(-)$ _____

© Education Development Center, Inc.

Number Line and Input-Output Table

$$^-10 \;\; ^-9 \;\; ^-8 \;\; ^-7 \;\; ^-6 \;\; ^-5 \;\; ^-4 \;\; ^-3 \;\; ^-2 \;\; ^-1 \;\; 0 \;\; 1 \;\; 2 \;\; 3 \;\; 4 \;\; 5 \;\; 6 \;\; 7 \;\; 8 \;\; 9 \;\; 10$$

Negative Numbers

Positive Numbers

INPUT										☒
OUTPUT										☒ − 5

Rules Using Two Operations

You know a possible rule for Button D on the machine. You also know a bag-and-dot drawing for the rule.

INPUT	6	8	5	10	25	12	
OUTPUT	13	17	11	21	51	25	(bag)(bag) + 1

Complete these tables for rules of more than one operation. Later, you will see a shorthand way to write the rules.

1

                   SHORTHAND

INPUT	1	4	2	7	5		(bag)	
OUTPUT	2	11	5			29	(bag)(bag)(bag) − **1**	

2

                   SHORTHAND

INPUT	1	4	2	6	3		(bag)	
OUTPUT	5	11	7			19	(bag)(bag) + **3**	

Changing Cross Number Puzzles

You have seen that if you double all the numbers in a Cross Number Puzzle, you get a new one that works.

1 Do you think that if you ADD the same number to each number in a puzzle, you will get a new puzzle that works? Complete **Puzzle A** and see if **Puzzle A + 5** works.

A

20		28
70		

A + 5

25		
	7	

2 Complete **Puzzle B** and see if **Puzzle B − 5** works.

B

30	9	
	6	
		64

B − 5

	4	
14		

3 Complete **Puzzle C** and see if **Puzzle C × 5** works.

C

	11	
12		

C × 5

45		
	50	