



# Investigating Cross Number Puzzles

Complete each Cross Number Puzzle by filling in numbers that make amounts on both sides of the thick line the same.

1

24	65	89
32	46	

2

80	9	89
70	8	
150		

3

	140	38
	122	62

4

20	40	50	
30	90	80	
70	60	10	
	190		



## Test Prep

- 5 John leaves his house at 7:30 A.M. He arrives at school at 8:25 A.M. How long does it take John to get to school? Explain how you found your answer.

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# Investigating Input-Output Tables

Complete the tables.

**1**

<b>INPUT</b>	6	10	4	8	12	20
Add 4	10					
Multiply by 2	20	28				48
Subtract 8	12					
<b>MACHINE OUTPUT</b>	12					

**2**

<b>INPUT</b>	6	10	4	8	12	20
Divide by 2	3	5				
Multiply by 4	12		8			
<b>MACHINE OUTPUT</b>	12			16		

**3** MAKE YOUR OWN.  
↓

<b>INPUT</b>	6	10	4	8		
Add 5					17	
Double						
Subtract 10						
<b>MACHINE OUTPUT</b>						



## Test Prep

**4** Which expression does NOT equal 16?

A.  $4 \times 4$

B.  $36 \div 2$

C.  $9 + 7$

D.  $21 - 5$

# Connecting Input-Output Machines and Puzzles

The numbers in the puzzle on the right are all double the numbers on the left. Complete the pairs of Cross Number Puzzles.

1

5	8	
7	10	

10	16	
14	20	
		60

2

11	10	21
9	8	
		38

22	20	
18	16	
40		



## Test Prep

- 3 Write the numbers in order from greatest to least.  
Explain how you decided how to order the numbers.

648,831      684,301      684,299

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# Introducing Negative Outputs

Each of the tables was made using one of the rules below. For each table, write the letter of the rule that was used to create it. Then complete the table.

**Rule A:** Multiply the input by 3.

**Rule B:** Subtract 6 from the input.

**Rule C:** Multiply the input by itself.

1 Rule \_\_\_\_\_

<b>INPUT</b>	7	15	50	6	5	4	0
<b>OUTPUT</b>	1	9	44	0			

2 Rule \_\_\_\_\_

<b>INPUT</b>	3	5	8	10	1	6	
<b>OUTPUT</b>	9	25	64	100			49

3 Rule \_\_\_\_\_

<b>INPUT</b>	3	5	8	10	7	4	
<b>OUTPUT</b>	9	15	24	30			33



## Test Prep

4 The temperature was 97°F at 2:00 P.M. Then a thunderstorm rolled in and the temperature dropped 16°F. After the storm, the temperature rose 8°F. What was the temperature then? Explain your answer.

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\_\_\_\_\_

# Determining Rules Using Two Operations

Complete the tables. Some of the rules use two operations.

1

INPUT	3	9	2	10	5	7	0	6	8	
OUTPUT	15	45	10							55

2

INPUT	18	9	14	11	29	129	100	114	99	
OUTPUT	9	0	5							146

3

INPUT	6	10	4	8	5	12	3	11	7	
OUTPUT	10	18	6							16

4

INPUT	4	7	3	9	0	11	8	10	12	
OUTPUT	16	25	13							22



## Test Prep

- 5 Marti used a rule to make this list of numbers.

1, 3, 7, 13, 21, ■

If she uses the same rule to continue the list, which number would come next?

- A. 23                      C. 33  
B. 31                      D. 37

- 6 What is the value of  $c$  in the equation  $63 - c = 29$ ?

- A. 34  
B. 44  
C. 46  
D. 92

# Multiplying Cross Number Puzzles

Complete all the puzzles.

1

<b>A</b>		
10	9	
8	12	

<b>A × 6</b>		
60	54	
48	72	

2

<b>B</b>			
40	10	30	
90	60	70	
20	50	80	

<b>B × 4</b>			
160	40	120	
360	240	280	
80	200	320	



## Test Prep

3 Which number sentence is correct?

- A.  $2 - 9 = 7$
- B.  $2 - 9 = 0$
- C.  $2 - 9 = 11$
- D.  $2 - 9 = -7$

4 Jacob left for school with 4 boxes of pencils. Each box had 12 pencils. At school, he gave 6 pencils to each of his 4 friends. Which number sentence below can be used to find the remaining number of pencils?

- A.  $(4 \times 12) + (6 \times 4) = \blacksquare$
- B.  $(4 + 12) - (6 + 4) = \blacksquare$
- C.  $(12 \times 6) - (6 \times 4) = \blacksquare$
- D.  $(4 \times 12) - (6 \times 4) = \blacksquare$