



Find the next number in the pattern.

Ex) 5000 , 1000 , 200 , 40 , 8 Rule: Divide 5

Answers

Ex. 8

1) 3 , 10 , 17 , 24 , _____

1. _____

2) 324 , 108 , 36 , 12 , _____

2. _____

3) 80 , 40 , 20 , 10 , _____

3. _____

4) 2 , 6 , 18 , 54 , _____

4. _____

5) 2 , 8 , 14 , 20 , 26 , 32 , _____

5. _____

6) 36 , 31 , 26 , 21 , 16 , 11 , 6 , _____

6. _____

7) 48 , 24 , 12 , 6 , _____

7. _____

8) 10 , 12 , 14 , 16 , 18 , _____

8. _____

9) 12 , 10 , 8 , 6 , 4 , _____

9. _____

10) 2 , 10 , 50 , 250 , _____

10. _____

11) 3 , 6 , 12 , 24 , _____

11. _____

12) 78 , 68 , 58 , 48 , 38 , 28 , 18 , _____

12. _____

13) 33 , 28 , 23 , 18 , 13 , 8 , _____

13. _____

14) 9 , 14 , 19 , 24 , _____

14. _____

15) 4 , 8 , 16 , 32 , _____

15. _____



Find the next number in the pattern.

Ex) 5000 , 1000 , 200 , 40 , 8 Rule: Divide 5

1) 3 , 10 , 17 , 24 , 31 Rule: Add 7

2) 324 , 108 , 36 , 12 , 4 Rule: Divide 3

3) 80 , 40 , 20 , 10 , 5 Rule: Divide 2

4) 2 , 6 , 18 , 54 , 162 Rule: Multiply 3

5) 2 , 8 , 14 , 20 , 26 , 32 , 38 Rule: Add 6

6) 36 , 31 , 26 , 21 , 16 , 11 , 6 , 1 Rule: Subtract 5

7) 48 , 24 , 12 , 6 , 3 Rule: Divide 2

8) 10 , 12 , 14 , 16 , 18 , 20 Rule: Add 2

9) 12 , 10 , 8 , 6 , 4 , 2 Rule: Subtract 2

10) 2 , 10 , 50 , 250 , 1,250 Rule: Multiply 5

11) 3 , 6 , 12 , 24 , 48 Rule: Multiply 2

12) 78 , 68 , 58 , 48 , 38 , 28 , 18 , 8 Rule: Subtract 10

13) 33 , 28 , 23 , 18 , 13 , 8 , 3 Rule: Subtract 5

14) 9 , 14 , 19 , 24 , 29 Rule: Add 5

15) 4 , 8 , 16 , 32 , 64 Rule: Multiply 2

Answers

Ex. 8

1. 31

2. 4

3. 5

4. 162

5. 38

6. 1

7. 3

8. 20

9. 2

10. 1,250

11. 48

12. 8

13. 3

14. 29

15. 64



Create a pattern then find the number in the pattern.

Answers

Ex) Start at 37 and create a pattern with the rule add 8.

What is the sixth number in the pattern? 37 45 53 61 69 77

Ex. 77

1) Start at 71 and create a pattern with the rule subtract 10.

What is the fourth number in the pattern? _____

1. _____

2) Start at 8 and create a pattern with the rule add 6.

What is the fourth number in the pattern? _____

2. _____

3) Start at 44 and create a pattern with the rule subtract 6.

What is the sixth number in the pattern? _____

3. _____

4) Start at 32 and create a pattern with the rule subtract 5.

What is the fourth number in the pattern? _____

4. _____

5) Start at 26 and create a pattern with the rule subtract 3.

What is the sixth number in the pattern? _____

5. _____

6) Start at 48 and create a pattern with the rule add 3.

What is the fifth number in the pattern? _____

6. _____

7) Start at 87 and create a pattern with the rule subtract 10.

What is the third number in the pattern? _____

7. _____

8) Start at 19 and create a pattern with the rule add 3.

What is the fourth number in the pattern? _____

8. _____

9) Start at 34 and create a pattern with the rule add 10.

What is the third number in the pattern? _____

9. _____

10) Start at 31 and create a pattern with the rule add 8.

What is the sixth number in the pattern? _____

10. _____



Create a pattern then find the number in the pattern.

Ex) Start at 37 and create a pattern with the rule add 8.

What is the sixth number in the pattern? 37 45 53 61 69 77

Ex. 77

1) Start at 71 and create a pattern with the rule subtract 10.

What is the fourth number in the pattern? 71 61 51 41 31 21

1. 41

2) Start at 8 and create a pattern with the rule add 6.

What is the fourth number in the pattern? 8 14 20 26 32 38

2. 26

3) Start at 44 and create a pattern with the rule subtract 6.

What is the sixth number in the pattern? 44 38 32 26 20 14

3. 14

4) Start at 32 and create a pattern with the rule subtract 5.

What is the fourth number in the pattern? 32 27 22 17 12 7

4. 17

5) Start at 26 and create a pattern with the rule subtract 3.

What is the sixth number in the pattern? 26 23 20 17 14 11

5. 11

6) Start at 48 and create a pattern with the rule add 3.

What is the fifth number in the pattern? 48 51 54 57 60 63

6. 60

7) Start at 87 and create a pattern with the rule subtract 10.

What is the third number in the pattern? 87 77 67 57 47 37

7. 67

8) Start at 19 and create a pattern with the rule add 3.

What is the fourth number in the pattern? 19 22 25 28 31 34

8. 28

9) Start at 34 and create a pattern with the rule add 10.

What is the third number in the pattern? 34 44 54 64 74 84

9. 54

10) Start at 31 and create a pattern with the rule add 8.

What is the sixth number in the pattern? 31 39 47 55 63 71

10. 71

Answers



Determine what rule the function machine is using.

1)

Input	Output
13	17
20	24
22	26
41	45
42	46

- A. Subtract 4
- B. Subtract 5
- C. Add 4
- D. Add 5

2)

Input	Output
14	20
28	34
37	43
42	48
50	56

- A. Subtract 6
- B. Add 6
- C. Add 8
- D. Add 5

3)

Input	Output
25	14
42	31
42	31
50	39
59	48

- A. Subtract 8
- B. Subtract 14
- C. Subtract 11
- D. Add 11

4)

In	Out
26	16
32	22
44	34
48	38
55	45

- A. Subtract 11
- B. Add 10
- C. Add 11
- D. Subtract 10

5)

Input	Output
10	19
22	31
23	32
24	33
46	55

- A. Add 9
- B. Subtract 10
- C. Add 10
- D. Add 6

6)

In	Out
17	30
24	37
31	44
40	53
41	54

- A. Add 15
- B. Subtract 13
- C. Subtract 15
- D. Add 13

7)

In	Out
15	25
18	28
36	46
46	56
48	58

- A. Subtract 10
- B. Add 10
- C. Subtract 13
- D. Add 13

8)

In	Out
20	13
31	24
38	31
44	37
54	47

- A. Subtract 10
- B. Add 10
- C. Add 7
- D. Subtract 7

9)

Input	Output
21	11
28	18
30	20
31	21
45	35

- A. Add 10
- B. Subtract 8
- C. Subtract 10
- D. Subtract 13

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____



Determine what rule the function machine is using.

1)

Input	Output
13	17
20	24
22	26
41	45
42	46

- A. Subtract 4
- B. Subtract 5
- C. Add 4
- D. Add 5

2)

Input	Output
14	20
28	34
37	43
42	48
50	56

- A. Subtract 6
- B. Add 6
- C. Add 8
- D. Add 5

3)

Input	Output
25	14
42	31
42	31
50	39
59	48

- A. Subtract 8
- B. Subtract 14
- C. Subtract 11
- D. Add 11

4)

In	Out
26	16
32	22
44	34
48	38
55	45

- A. Subtract 11
- B. Add 10
- C. Add 11
- D. Subtract 10

5)

Input	Output
10	19
22	31
23	32
24	33
46	55

- A. Add 9
- B. Subtract 10
- C. Add 10
- D. Add 6

6)

In	Out
17	30
24	37
31	44
40	53
41	54

- A. Add 15
- B. Subtract 13
- C. Subtract 15
- D. Add 13

7)

In	Out
15	25
18	28
36	46
46	56
48	58

- A. Subtract 10
- B. Add 10
- C. Subtract 13
- D. Add 13

8)

In	Out
20	13
31	24
38	31
44	37
54	47

- A. Subtract 10
- B. Add 10
- C. Add 7
- D. Subtract 7

9)

Input	Output
21	11
28	18
30	20
31	21
45	35

- A. Add 10
- B. Subtract 8
- C. Subtract 10
- D. Subtract 13

Answers

- 1. **C**
- 2. **B**
- 3. **C**
- 4. **D**
- 5. **A**
- 6. **D**
- 7. **B**
- 8. **D**
- 9. **C**



Determine what rule the function machine is using.

1)

Input	Output
13	17
20	24
22	26
41	45
42	46

- A. Subtract 4
- B. Subtract 5
- C. Add 4
- D.

2)

Input	Output
14	20
28	34
37	43
42	48
50	56

- A. Subtract 6
- B. Add 6
- C.
- D. Add 5

3)

Input	Output
25	14
42	31
42	31
50	39
59	48

- A. Subtract 8
- B.
- C. Subtract 11
- D. Add 11

4)

In	Out
26	16
32	22
44	34
48	38
55	45

- A. Subtract 11
- B. Add 10
- C.
- D. Subtract 10

5)

Input	Output
10	19
22	31
23	32
24	33
46	55

- A. Add 9
- B. Subtract 10
- C. Add 10
- D.

6)

In	Out
17	30
24	37
31	44
40	53
41	54

- A.
- B. Subtract 13
- C. Subtract 15
- D. Add 13

7)

In	Out
15	25
18	28
36	46
46	56
48	58

- A. Subtract 10
- B. Add 10
- C. Subtract 13
- D.

8)

In	Out
20	13
31	24
38	31
44	37
54	47

- A. Subtract 10
- B.
- C. Add 7
- D. Subtract 7

9)

Input	Output
21	11
28	18
30	20
31	21
45	35

- A. Add 10
- B. Subtract 8
- C. Subtract 10
- D.

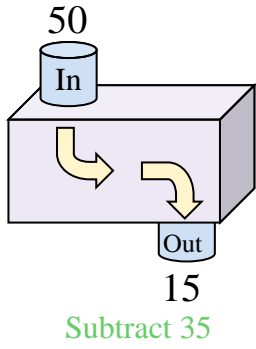
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

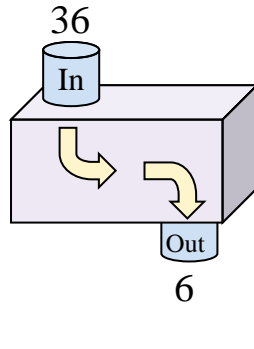


Determine the rule each function machine is using.

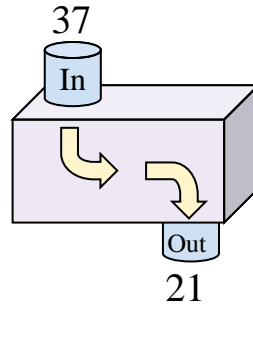
Ex)



1)



2)



Answers

Ex. Subtract 35

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

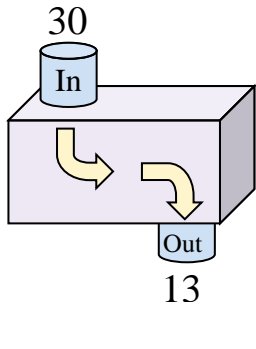
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9. _____

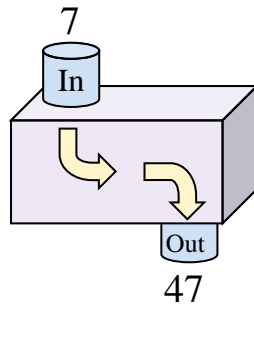
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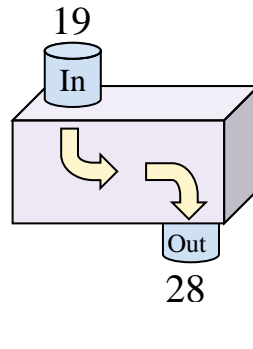
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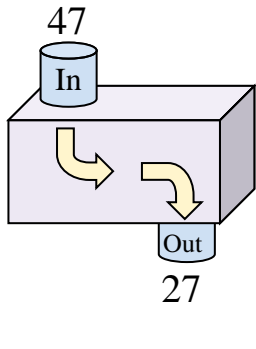
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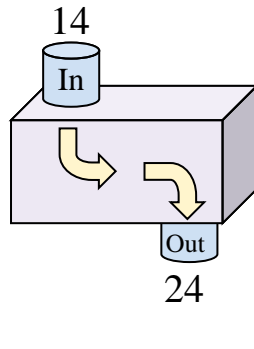
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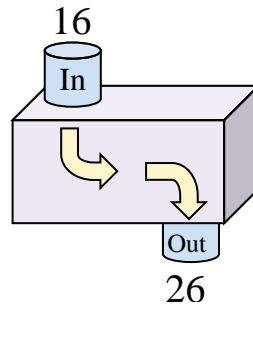
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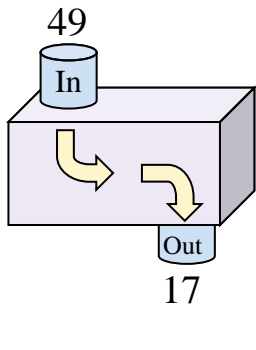
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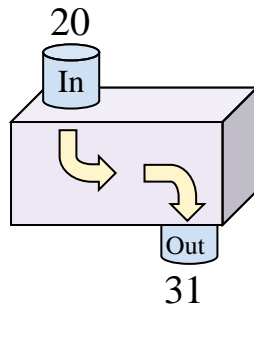
8)



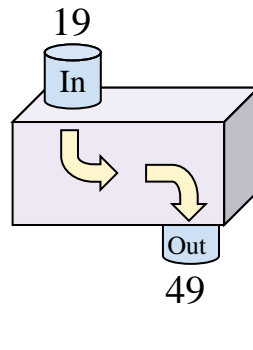
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10)



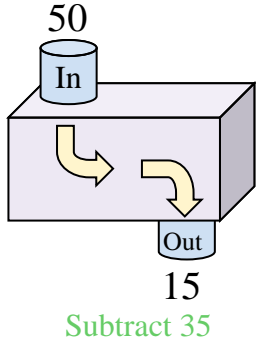
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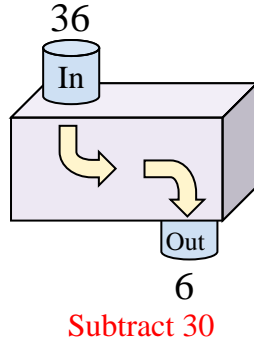


Determine the rule each function machine is using.

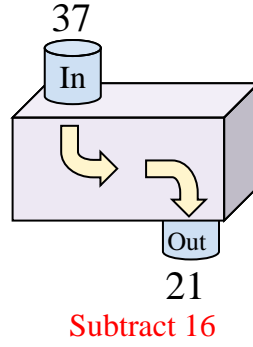
Ex)



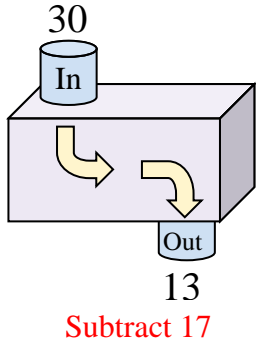
1)



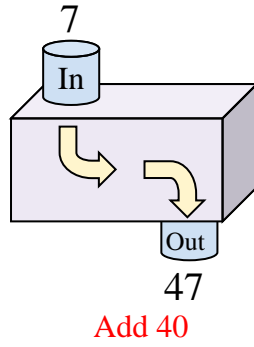
2)



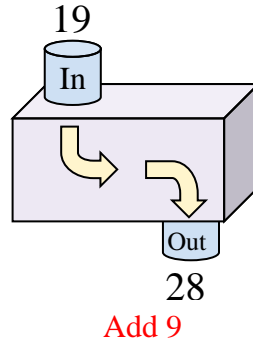
3)



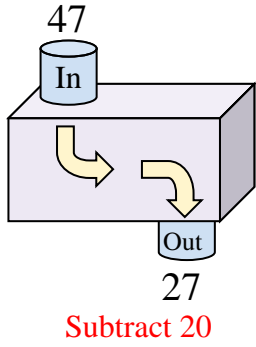
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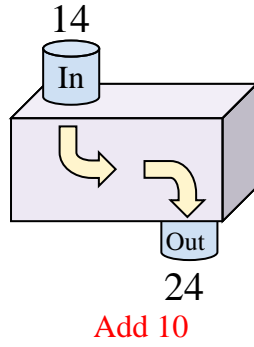
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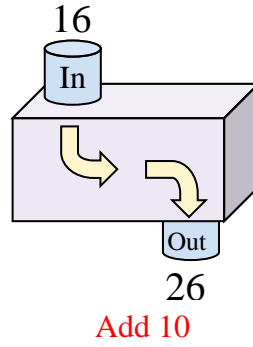
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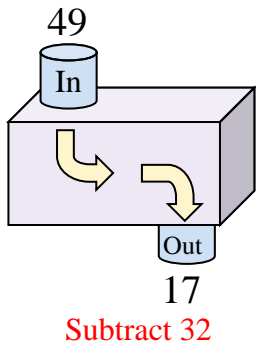
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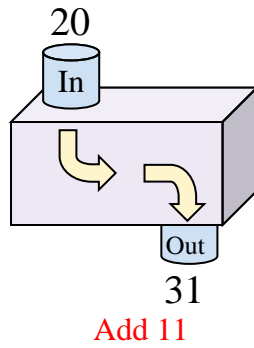
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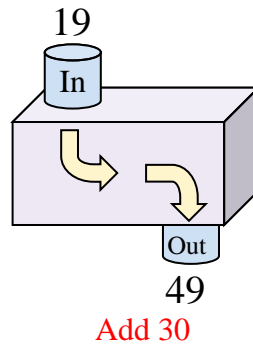
9)



10)



11)



Answers

Ex. **Subtract 35**

1. **Subtract 30**

2. **Subtract 16**

3. **Subtract 17**

4. **Add 40**

5. **Add 9**

6. **Subtract 20**

7. **Add 10**

8. **Add 10**

9. **Subtract 32**

10. **Add 11**

11. **Add 30**

Name: _____

In and Out Boxes

Fill in the empty boxes.

a.

In	Out
1	3
3	
5	
7	

rule: add 2

b.

In	Out
1	
2	
5	
8	7

rule: subtract 1



c.

In	3	7	8	10
Out	1			

rule: subtract 2

d.

In	0	1	5	9
Out			10	

rule: add 5

e.

In	3	5	7	9
Out		15		

rule: add 10

f.

In	7	8	11	14
Out		4		

rule: subtract 4

Write the rule and fill in the empty boxes.

g.

In	3	5	7	13
Out	0	2	4	

rule:

h.

In	1	5	6	10
Out	5	9		

rule:

In and Out Boxes

Fill in the empty boxes.

a.

In	Out
1	3
3	<u>5</u>
5	<u>7</u>
7	<u>9</u>

rule: add 2

b.

In	Out
1	<u>0</u>
2	<u>1</u>
5	<u>4</u>
8	7

rule: subtract 1



c.

In	3	7	8	10
Out	1	<u>5</u>	<u>6</u>	<u>8</u>

rule: subtract 2

d.

In	0	1	5	9
Out	<u>5</u>	<u>6</u>	10	<u>14</u>

rule: add 5

e.

In	3	5	7	9
Out	<u>13</u>	15	<u>17</u>	<u>19</u>

rule: add 10

f.

In	7	8	11	14
Out	<u>3</u>	4	<u>7</u>	<u>10</u>

rule: subtract 4

Write the rule and fill in the empty boxes.

g.

In	3	5	7	13
Out	0	2	4	<u>10</u>

rule: **subtract 3**

h.

In	1	5	6	10
Out	5	9	<u>10</u>	<u>14</u>

rule: **add 4**

Name: _____

In and Out Boxes

Fill in the empty boxes.

a.

In	Out
1	0
3	
	4
7	

rule: subtract 1

b.

In	Out
0	5
3	
	15
15	

rule: add 5



c.

In	3	7		11
Out	5		10	

rule: add 2

d.

In	5	8	9	
Out	0			10

rule: subtract 5

e.

In	20	30		80
Out			40	

rule: subtract 10

f.

In		8	9	11
Out	9	12		

rule: add 4

Write the rule and fill in the empty boxes.

g.

In	3		8	13
Out	6	10	11	16

rule:

h.

In	3	6	7	
Out	1	4		8

rule:

ANSWER KEY

In and Out Boxes

Fill in the empty boxes.

a.

In	Out
1	0
3	2
5	4
7	6

rule: subtract 1

b.

In	Out
0	5
3	8
10	15
15	20

rule: add 5



c.

In	3	7	8	11
Out	5	9	10	13

rule: add 2

d.

In	5	8	9	15
Out	0	3	4	10

rule: subtract 5

e.

In	20	30	50	80
Out	10	20	40	70

rule: subtract 10

f.

In	5	8	9	11
Out	9	12	13	15

rule: add 4

Write the rule and fill in the empty boxes.

g.

In	3	7	8	13
Out	6	10	11	16

rule: **add 3**

h.

In	3	6	7	10
Out	1	4	5	8

rule: **subtract 2**

Name : _____

Score : _____

Teacher : _____

Date : _____

In and Out Boxes

Fill in the Empty Boxes.

1)

In	Out
1	
8	
10	
11	

Rule: Add 4

2)

In	Out
8	
9	
12	
17	

Rule: Subtract 2

3)

In	Out
2	
3	
7	
9	

Rule: Add 5

4)

In	Out
0	
1	
3	
9	

Rule: Add 3

5)

In	3	8	11	14
Out				

Rule: Subtract 1

6)

In	7	12	15	16
Out				

Rule: Subtract 4

Keith and Jason were born on the exact day, but not in the same year. Their ages are shown in the table below.

Keith's Age	9	10	11	12	20	29
Jason's Age	12	13	14	15	23	32

- 7) When Keith was 10, how old was Jason? _____
- 8) When Jason was 23, how old was Keith? _____
- 9) How much older is Jason than Keith? _____
- 10) Which choice best explains the rule for this table? (Circle One)
- Subtract 5 from Jason's Age to find Keith's age.
 - Subtract 3 from Keith's Age to find Jason's age.
 - Add 3 to Jason's Age to find Keith's age.
 - Add 3 to Keith's Age to find Jason's age.



Name : _____

Score : _____

Teacher : _____

Date : _____

In and Out Boxes

Fill in the Empty Boxes.

1)

In	Out
1	5
8	12
10	14
11	15

Rule: Add 4

2)

In	Out
8	6
9	7
12	10
17	15

Rule: Subtract 2

3)

In	Out
2	7
3	8
7	12
9	14

Rule: Add 5

4)

In	Out
0	3
1	4
3	6
9	12

Rule: Add 3

5)

In	3	8	11	14
Out	2	7	10	13

Rule: Subtract 1

6)

In	7	12	15	16
Out	3	8	11	12

Rule: Subtract 4

Keith and Jason were born on the exact day, but not in the same year. Their ages are shown in the table below.

Keith's Age	9	10	11	12	20	29
Jason's Age	12	13	14	15	23	32

- 7) When Keith was 10, how old was Jason? 13
- 8) When Jason was 23, how old was Keith? 20
- 9) How much older is Jason than Keith? 3
- 10) Which choice best explains the rule for this table? (Circle One)
- Subtract 5 from Jason's Age to find Keith's age.
 - Subtract 3 from Keith's Age to find Jason's age.
 - Add 3 to Jason's Age to find Keith's age.
 - Add 3 to Keith's Age to find Jason's age.



Name : _____

Score : _____

Teacher : _____

Date : _____

Complete the function table for each equation.

1) $y = x - 7$

x	y
5	-2
8	1
3	-4
0	-7
4	-3

5) $y = x - 3$

x	y
6	
3	
9	
8	
7	

9) $y = x + 7$

x	y
9	
6	
7	
1	
0	

2) $y = x - 8$

x	y
8	
0	
4	
2	
3	

6) $y = x + 8$

x	y
2	
7	
3	
6	
5	

10) $y = x + 3$

x	y
3	
8	
6	
5	
4	

3) $y = x + 5$

x	y
0	
8	
9	
3	
6	

7) $y = x - 9$

x	y
0	
2	
6	
9	
4	

11) $y = x - 2$

x	y
3	
2	
5	
0	
7	

4) $y = x + 2$

x	y
9	
7	
1	
8	
0	

8) $y = x - 5$

x	y
8	
7	
2	
4	
9	

12) $y = x + 9$

x	y
6	
5	
8	
1	
7	



Name : _____

Score : _____

Teacher : _____

Date : _____

Complete the function table for each equation.

1) $y = x - 7$

x	y
5	-2
8	1
3	-4
0	-7
4	-3

5) $y = x - 3$

x	y
6	3
3	0
9	6
8	5
7	4

9) $y = x + 7$

x	y
9	16
6	13
7	14
1	8
0	7

2) $y = x - 8$

x	y
8	0
0	-8
4	-4
2	-6
3	-5

6) $y = x + 8$

x	y
2	10
7	15
3	11
6	14
5	13

10) $y = x + 3$

x	y
3	6
8	11
6	9
5	8
4	7

3) $y = x + 5$

x	y
0	5
8	13
9	14
3	8
6	11

7) $y = x - 9$

x	y
0	-9
2	-7
6	-3
9	0
4	-5

11) $y = x - 2$

x	y
3	1
2	0
5	3
0	-2
7	5

4) $y = x + 2$

x	y
9	11
7	9
1	3
8	10
0	2

8) $y = x - 5$

x	y
8	3
7	2
2	-3
4	-1
9	4

12) $y = x + 9$

x	y
6	15
5	14
8	17
1	10
7	16

