

Name _____

Patterns and Functions

1. A number sequence is shown below. Which expression can be used to represent the sequence?

17, 21, 25, 29, ...

- A. $n - 4$
- B. $n + 4$
- C. $4n$
- D. $4n + 13$

2. Which ordered pair can be used to represent any ordered pair in the table?

- A. $(x, -\frac{x}{9})$
- B. $(x, \frac{x}{9})$
- C. $(x, -9x)$
- D. $(x, -9x)$

x	y
-27	3
-9	1
0	0
9	-1

3. Use the function to fill in the missing numbers in the table.

$x + 14 = y$	
x	y
0	
1	
2	
3	

$y = 8x$	
x	y
0	
10	
20	
30	

$y = \frac{1}{2}x - 1$	
x	y
0	
2	
4	
6	

4. Write the function (rule) for each table. Use the function to fill in the missing numbers.

x	y
2	12
4	
6	36
8	

x	y
0	-5
1	-4
5	
8	

x	y
6	3
	10
24	12
	15

5. Continue each pattern with the next two numbers.

a. 1, -2, 4, -8, 16, _____, _____

b. 11, 13, 16, 20, 25, 31, 38, _____, _____

6. 3, 8, 13, 18, 23...

a. What are the next two terms in the sequence?

b. Write the algebraic expression for this sequence.

c. What would the 20th term be in this sequence?

7. Look for a pattern. Give the rule for the table that tells the relationship between x and y .

x	2	4	6	8	9
y	10	16	22	28	31

A. Multiply x by 10 to get y

B. Multiply x by 2, then subtract 1

C. Multiply x by 3, then add 4

D. Multiply x by 5

8. 6, 13, 20, 27,

a. What are the next two terms in the sequence?

b. Write the algebraic expression for this sequence.

c. What would be the 15th term in this sequence?

Patterns and Functions Answers

1. A number sequence is shown below. Which expression can be used to represent the sequence?

17, 21, 25, 29, ...

- A. $n - 4$
- B. $n + 4$
- C. $4n$
- D. $4n + 13$

2. Which ordered pair can be used to represent any ordered pair in the table?

- A. $(x, -\frac{x}{9})$
- B. $(x, \frac{x}{9})$
- C. $(x, -9x)$
- D. $(x, -9x)$

x	y
-27	3
-9	1
0	0
9	-1

3. Use the function to fill in the missing numbers in the table.

$x + 14 = y$	
x	y
0	14
1	15
2	16
3	17

$y = 8x$	
x	y
0	0
10	80
20	160
30	240

$y = \frac{1}{2}x - 1$	
x	y
0	-1
2	0
4	1
6	2

4. Write the function (rule) for each table. Use the function to fill in the missing numbers.

$y = 6x$

x	y
2	12
4	24
6	36
8	48

$y = x - 5$

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

$y = \frac{x}{2}$

x	y
6	3
20	10
24	12
30	15

5. Continue each pattern with the next two numbers.

a. 1, -2, 4, -8, 16, -32, 64

b. 11, 13, 16, 20, 25, 31, 38, 46, 55

6. 3, 8, 13, 18, 23...

a. What are the next two terms in the sequence?

28, 33

b. Write the algebraic expression for this sequence.

$5n - 2$

c. What would the 20th term be in this sequence?

98

7. Look for a pattern. Give the rule for the table that tells the relationship between x and y .

x	2	4	6	8	9
y	10	16	22	28	31

A. Multiply x by 10 to get y

B. Multiply x by 2, then subtract 1

C. Multiply x by 3, then add 4

D. Multiply x by 5

8. 6, 13, 20, 27,

a. What are the next two terms in the sequence? **34, 41**

b. Write the algebraic expression for this sequence. **$7n - 1$**

c. What would be the 15th term in this sequence? **104**