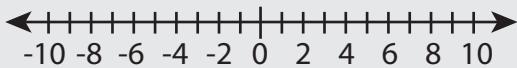


# 26 Patterns

D.1.1.1 D.1.2.1

## Example

Use the number line below to answer the question.



What is the next number in this pattern?

$-8, -5, -2, 1, 4, \dots$

- A 5
- B 7
- C 8
- D 9

## Example

What is the missing number?

x	y
2	7
4	11
7	17
9	
12	27

- A 19
- B 21
- C 23
- D 25

## Thinking It Through

**Solve** —*Look for a Pattern* Look at the number line carefully. How do the numbers in the pattern change?

The numbers increase by 3 each time:  $-8 + 3 = -5$ ;  $-5 + 3 = -2$ ;  $-2 + 3 = 1$ ; and  $1 + 3 = 4$ .

The next number in this pattern is  $4 + 3 = 7$ , *answer B*.

## Thinking It Through

**Solve** —*Look for a Pattern* This is a two-operation function. The pattern is that  $y$  increases by 2 when  $x$  is increased by 1. To find the value of  $y$  when  $x$  is 9, continue the pattern:

$$\text{If } x = 8, y = 19$$

$$\text{If } x = 9, y = 21$$

The rule of the pattern is  $y = 2x + 3$ , so by substituting 9 for  $x$ , the result is also 21, *choice B*.

## Review

- A **pattern** is a series of numbers or figures that follows a rule. 2, 4, 6, 8... is an example of a number pattern, while  $\square \triangle \circ \square \triangle \circ \dots$  is a pattern with shapes. Patterns may grow, shrink, or repeat.
- When trying to determine a rule or pattern, it is important to remember that there may be more than one operation. The rule of a pattern must work for each set of values in the pattern.

# Patterns

**DIRECTIONS** Read and solve each question. Then circle the letter of the best answer.

1. Use the table below to answer the question.

x	y
3	10.5
5	17.5
8	28
12	42

What is the rule for this function table?

- A  $y = 3.5x$   
 B  $y = x + 7$   
 C  $y = x + 30$   
 D  $y = 2.5x$
2. Use the table to answer the question.

x	y
1	5
2	7
3	9
4	11

Which sentence is true for all pairs in the table?

- A  $y = 2x + 2$       C  $y = 3x + 2$   
 B  $y = 2x + 3$       D  $y = 3x - 1$



The rule must work for every pair of values.

- Use the table below to answer question 3.

x	y
3	14
7	26
9	
12	41
15	50

3. What is the missing number in the table?

- A 32  
 B 34  
 C 35  
 D 36

- Use the table below to answer question 4.

x	y
2	5
5	17
8	29
11	41
14	

4. What is the missing number in the table?

- A 38                      C 53  
 B 39                      D 56