

Chapter Standardized Test

TEST-TAKING STRATEGY Read the test questions carefully. Also try to find short cuts that will help you move through the questions quicker.

1. **MULTIPLE CHOICE** Which of the following relations is *not* a function?

(A)

x	1	2	3
y	1	2	3

(B)

x	0	1	3
y	2	2	2

(C)

x	1	1	1
y	0	2	3

(D)

x	1	2	3
y	2	1	3

(E)

x	0	3	1
y	1	2	3

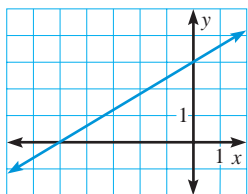
2. **MULTIPLE CHOICE** If $f(x) = -x^2 - 7x - 22$, what is $f(-5)$?

- (A) -82 (B) -32 (C) -12
(D) 12 (E) 38

3. **MULTIPLE CHOICE** What is the slope of the line that passes through $(-4, -9)$ and $(0, 5)$?

- (A) $-\frac{7}{2}$ (B) $-\frac{2}{7}$ (C) $\frac{2}{7}$
(D) 1 (E) $\frac{7}{2}$

4. **MULTIPLE CHOICE** Which function is represented by the graph shown?



- (A) $3x - 5y = 15$
(B) $3x - 5y = 0$
(C) $3x - 5y = -15$
(D) $3x + 5y = 15$
(E) $3x + 5y = -15$

5. **MULTIPLE CHOICE** What is the y-intercept of the line $y = 4x - 3$?

- (A) 1 (B) 3 (C) 4
(D) -3 (E) -4

6. **MULTIPLE CHOICE** The variables x and y vary directly, and $y = 20$ when $x = 5$. Which equation relates the variables?

- (A) $y = \frac{1}{5}x$ (B) $y = \frac{1}{4}x$ (C) $y = 5x$
(D) $y = 20x$ (E) $y = 4x$

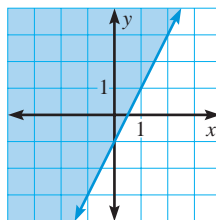
7. **MULTIPLE CHOICE** What is the equation of the line that passes through $(-4, -1)$ and $(0, 7)$?

- (A) $y = 2x + 9$ (B) $y = \frac{1}{2}x + 7$
(C) $y = 2x + 7$ (D) $y = -\frac{1}{2}x + 7$
(E) $y = -2x + 7$

8. **MULTIPLE CHOICE** What is the equation of the line that contains $(3, 3)$ and is perpendicular to the line $y = -2x + 3$?

- (A) $y = \frac{1}{2}x + \frac{3}{2}$ (B) $y = -2x + 9$
(C) $y = -\frac{1}{2}x + \frac{3}{2}$ (D) $y = 2x + 9$
(E) $y = \frac{1}{2}x$

9. **MULTIPLE CHOICE** Which inequality is represented by the graph shown?

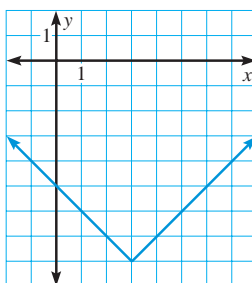


- (A) $y < 2x - 1$
(B) $y > 2x - 1$
(C) $y \leq 2x - 1$
(D) $y \neq 2x - 1$
(E) $y \geq 2x - 1$

10. **MULTIPLE CHOICE** If $f(x) = \begin{cases} 2x - 3, & \text{if } x < 4 \\ -x + 6, & \text{if } x \geq 4 \end{cases}$, what is $f(4)$?

- (A) 2 (B) 4
(C) 5 (D) 10
(E) 11

11. **MULTIPLE CHOICE** Which function is represented by the graph shown?



- (A) $y = |x - 3| + 8$
(B) $y = |x + 3| - 8$
(C) $y = |x + 3| + 8$
(D) $y = |x - 3| - 8$
(E) $y = -|x - 3| - 8$

QUANTITATIVE COMPARISON In Exercises 12 and 13, choose the statement that is true about the given quantities.

- (A) The quantity in column A is greater.
- (B) The quantity in column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the given information.

	Column A	Column B
12.	slope of the line that passes through $(-6, 1)$ and $(2, 8)$	slope of the line that passes through $(0, 5)$ and $(-4, -9)$
13.	$f(-3)$ where $f(x) = x^2 - 7x - 24$	$f(-3)$ where $f(x) = \begin{cases} 2x, & \text{if } x \leq 0 \\ -2x, & \text{if } x > 0 \end{cases}$

14. **MULTI-STEP PROBLEM** You are planting an herb garden. The garden has 120 inches of row space, the amount of space needed *between* rows of plants. Parsley seeds need 15 inches of row space and garlic cloves need 12 inches of row space.
- a. If you plant only parsley seeds, at most how many rows can you plant?
 - b. If you plant only garlic cloves, at most how many rows can you plant?
 - c. Write a model that shows the maximum number of rows you can plant if you plant both herbs and leave 12 inches of row space between the parsley and the garlic.
 - d. If you plant five rows of parsley seeds, how many rows of garlic cloves can you plant?
15. **MULTI-STEP PROBLEM** The table gives the number n of nurses per 100,000 people in the United States where t is the number of years since 1990.

t	0	1	2	3	4	5	6
n	713	730	748	767	785	805	815

- a. Draw a scatter plot of the data.
 - b. Describe the correlation shown by the scatter plot.
 - c. Approximate the best-fitting line for the data.
 - d. Use your equation from part (c) to predict the number of nurses per 100,000 people in the United States in 2010.
16. **MULTI-STEP PROBLEM** While playing pool, you try to shoot the eight ball into the upper right corner pocket. Imagine that a coordinate plane is placed over the pool table. The eight ball is at $(4, 3)$ and the pocket you are aiming for is at $(10, 5)$. You are trying to decide at which point to bank the ball off the side.
- a. Write an equation for the path of the ball if you aim for the point $(6.25, 0)$.
 - b. Write an equation for the path of the ball if you aim for the point $(7.5, 0)$.
 - c. Write an equation for the path of the ball if you aim for the point $(8.75, 0)$.
 - d. Which point should you aim for to make your shot?

