

Chapter Standardized Test

TEST-TAKING STRATEGY Learn as much as you can about a test ahead of time, such as the types of questions and the topics that the test will cover.

1. **MULTIPLE CHOICE** What is the value of

$$f(x) = \frac{x\sqrt{x^2 - 1}}{x^2 + 8} \text{ when } x = 8?$$

- (A) $\frac{3\sqrt{7}}{16}$ (B) $\frac{7}{8}$ (C) $\frac{\sqrt{7}}{3}$
 (D) $\frac{8}{9}$ (E) $3\sqrt{7}$

2. **MULTIPLE CHOICE** Which quadrants of the coordinate plane will contain the graph of $y = \sqrt{3x - 1} - 2$?

- (A) Quadrant I
 (B) Quadrants I and IV
 (C) Quadrant IV
 (D) Quadrants II and III
 (E) Quadrants I and II

3. **MULTIPLE CHOICE** Evaluate the expression

$$5\sqrt{7} + \sqrt{448} + \sqrt{175} - \sqrt{63}.$$

- (A) $15\sqrt{7}$ (B) $16\sqrt{7}$ (C) $18\sqrt{7}$
 (D) $20\sqrt{7}$ (E) $21\sqrt{7}$

4. **MULTIPLE CHOICE** Which one of the following is the simplified expression of $(3 - \sqrt{6})^2$?

- (A) $9 - 5\sqrt{6}$ (B) $3 - 6\sqrt{6}$
 (C) 15 (D) $15 - 6\sqrt{6}$
 (E) None of these

5. **MULTIPLE CHOICE** The geometric mean of 144 and a is 6. What is a ?

- (A) $\frac{1}{24}$ (B) $\frac{1}{4}$ (C) $\frac{1}{2}$
 (D) 12 (E) 36

6. **MULTIPLE CHOICE** Which one of the following is a solution of the equation $x = \sqrt{880 - 18x}$?

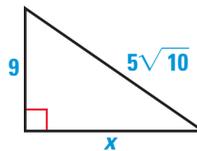
- (A) -22 (B) 0 (C) 22
 (D) 40 (E) 49

7. **MULTIPLE CHOICE** What term should be added to $x^2 - \frac{4}{3}x$ so that the result is a perfect square trinomial?

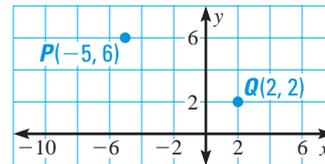
- (A) $-\frac{2}{3}$ (B) $\frac{64}{9}$ (C) $\frac{4}{9}$
 (D) $-\frac{8}{3}$ (E) $\frac{2}{3}$

8. **MULTIPLE CHOICE** What is the length of the missing side of the triangle?

- (A) 10 (B) 11
 (C) 12 (D) 13
 (E) 15



9. **MULTIPLE CHOICE** What is the distance between points P and Q ?



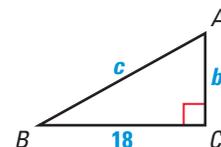
- (A) 5 (B) $\sqrt{33}$ (C) $\sqrt{113}$
 (D) $\sqrt{73}$ (E) $\sqrt{65}$

10. **MULTIPLE CHOICE** Use the graph in Exercise 9. Find the midpoint between points P and Q .

- (A) $(-\frac{3}{2}, 4)$ (B) $(-\frac{7}{2}, 2)$ (C) $(-\frac{3}{2}, 2)$
 (D) $(-\frac{7}{2}, 4)$ (E) $(\frac{7}{2}, 2)$

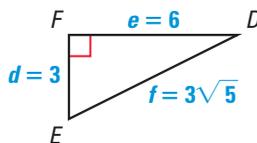
11. **MULTIPLE CHOICE** The length of side a is 18. The tangent of angle A is $\frac{9}{5}$. What is the length of the hypotenuse?

- (A) 10
 (B) 20
 (C) $2\sqrt{106}$
 (D) $4\sqrt{106}$
 (E) $8\sqrt{53}$



QUANTITATIVE COMPARISON In Exercises 12–15, choose the statement below that is true about the numbers.

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



	Column A	Column B
12.	$\sin D$	$\sin E$
13.	$\cos D$	$\sin D$
14.	$\cos D$	$\cos E$
15.	$\sin E$	$\cos E$

16. **MULTIPLE CHOICE** Choose the missing reason in the following proof that for all real numbers a and b , $-(a + b) = (-a) + (-b)$.

STATEMENTS

- a and b are real numbers
- $-(a + b) = (-1)(a + b)$
- $-(a + b) = (-1)a + (-1)b$
- $-(a + b) = (-a) + (-b)$

REASONS

- Given
- Multiplicative property of -1
- _____
- Multiplicative property of -1

- (A) Definition of subtraction
 (B) Associative property of addition
 (C) Inverse property of addition
 (D) Distributive property
 (E) Multiplication axiom of equality

17. **MULTI-STEP PROBLEM** You have a very small television set in your home now. The length of your little TV screen is 8 inches, but the TV is called a 10-inch TV because the length of the screen’s diagonal is 10 inches. After shopping for a larger television, you find two televisions that interest you. One is a 25-inch TV with a screen length of 20 inches. The other TV is advertised as a big screen because it is “double the dimensions of the 25-inch TV.”

- Write an equation and solve it to find the width of the 25-inch screen.
- Find the length and width of the big screen television.
- What is the area of the 25-inch screen? of the big screen?
- How many times larger is the area of the big screen than the area of the 25-inch screen?
- Suppose that the television manufacturer produced a 75-inch screen TV. How many times larger is the area of the 75-inch screen than the area of the 25-inch screen?