Chapter Standardized Test

▶ **TEST-TAKING STRATEGY** Think positively during a test. This will help keep up your confidence and enable you to focus on each question.

1. MULTIPLE CHOICE Which of the following is the solution of the proportion $\frac{4}{y + 9} = \frac{6}{y - 7}$?

(A) -82 (B) -41 (C) -13

(D) 7 (E) 41

2. QUANTITATIVE COMPARISON Solve each proportion and choose the statement below that is true about the solutions.

| COLUMN A	COLUMN B
$\frac{3}{x - 2} = \frac{2x + 2}{x^2 - 4}$	$\frac{5}{y + 12} = \frac{2}{y + 6}$

(A) The solution in column A is greater.

(B) The solution in column B is greater.

(C) The two solutions are equal.

(D) The relationship cannot be determined from the given information.

3. MULTIPLE CHOICE What is 380% of 52?

(A) 0.07 (B) 13.68 (C) 19.76

(D) 136.84 (E) 197.6

4. MULTIPLE CHOICE 18.6 miles is 15% of what distance?

(A) 1.24 miles   (B) 2.79 miles   (C) 105.4 miles

(D) 124 miles   (E) 279 miles

5. MULTIPLE CHOICE There are 840 students in your school. At a pep rally for a football game, 614 students attend. What percent of the students in your school attended the pep rally?

(A) about 136.8%   (B) about 78.8%

(C) about 73.1%   (D) about 36.8%

(E) about 26.9%

6. MULTIPLE CHOICE Which of the following equations models inverse variation?

(A) $y = \frac{x}{3}$ (B) $y = 3x$ (C) $y = x + 3$

(D) $xy = 3$ (E) $y = 3 - x$

7. MULTIPLE CHOICE The variables x and y vary inversely. When x is 9, y is 36. If x is 3, what is y?

(A) 3 (B) 12 (C) 30

(D) 36 (E) 108

8. MULTIPLE CHOICE What is the simplified form of the expression $\frac{x^3 - 10x^2 + 9x}{x^2 + 5x - 6}$?

(A) $\frac{x - 9}{x + 6}$ (B) $\frac{x}{x + 6}$ (C) $\frac{1}{x + 6}$

(D) $\frac{x(x - 9)}{x + 6}$ (E) $\frac{x}{(x - 1)(x + 6)}$

9. MULTIPLE CHOICE A coin is tossed onto the large rectangular region shown below. Assume it is equally likely to land on any point in the region. What is the probability the coin will land in the small rectangle when $x = 3$?

(A) $\frac{1}{15}$

(B) $\frac{3}{25}$

(C) $\frac{1}{5}$

(D) $\frac{2}{5}$

(E) $\frac{25}{3}$

$6x^2 - 3x$

$x + 6$

$3x$

$5x$
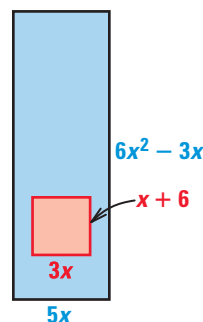
10. MULTIPLE CHOICE What is the simplified form of the expression $\frac{9x^2}{4x} \cdot \frac{16x^3}{x^5}$?

(A) $36x$ (B) $\frac{9}{x}$ (C) $\frac{36}{x}$

(D) $36x^3$ (E) $\frac{64}{9x^3}$

11. MULTIPLE CHOICE What is the simplified form of the expression $\frac{x^2 - 64}{3x^2} \div (x - 8)$?

(A) $\frac{x + 8}{3x^2}$ (B) $\frac{x - 8}{3x^2}$ (C) $\frac{1}{3x^2}$

(D) $\frac{x^3 - 512}{3x}$ (E) $\frac{x + 8}{3x^2(x - 8)}$

12. MULTIPLE CHOICE Find the LCD of $\dfrac{7x}{x^2 - 9}$ and $\dfrac{3}{x^2 + x - 6}$.

(A) $(x + 3)(x - 3)$ **(B)** $(x^2 - 9)(x^2 + x + 6)$ **(C)** $(x + 3)(x - 2)$

(D) $(x + 3)(x - 3)(x - 2)$ **(E)** $(x - 3)(x - 2)$

13. MULTIPLE CHOICE What is the simplified form of the following expression?
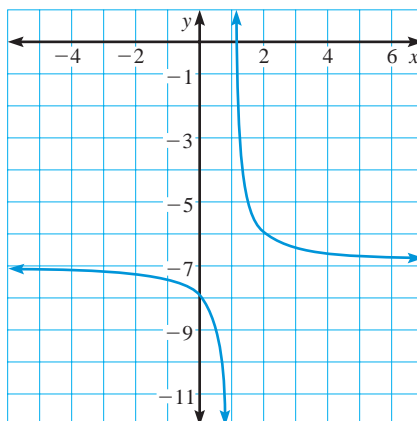
$$\frac{2x + 9}{x + 5} - \frac{x - 4}{x - 2}$$

(A) $\dfrac{x^2 + 6x + 2}{(x + 5)(x - 2)}$ **(B)** $\dfrac{x^2 + 6x - 38}{(x + 5)(x - 2)}$ **(C)** $\dfrac{x^2 + 6x + 38}{x^2 - 10}$

(D) $\dfrac{x^2 + 4x + 2}{(x + 5)(x - 2)}$ **(E)** $\dfrac{x^2 + 4x - 38}{(x + 5)(x - 2)}$

14. MULTIPLE CHOICE What is $x^2 + 24x - 3$ divided by $x - 4$?

(A) $x + 28 + \dfrac{109}{x - 4}$ **(B)** $\dfrac{x + 28}{x - 4} + 109$ **(C)** $\dfrac{x + 28}{x - 4}$

(D) $\dfrac{x - 4}{x + 28}$ **(E)** $\dfrac{x - 4}{x + 28} + 109$

15. MULTIPLE CHOICE Which function represents the graph?

(A) $y = \dfrac{1}{x - 1} - 7$

(B) $y = \dfrac{1}{x + 1} - 7$

(C) $y = \dfrac{1}{x - 7} + 1$

(D) $y = \dfrac{1}{x - 1} + 7$

(E) $y = \dfrac{1}{x + 1} + 7$

16. MULTI-STEP PROBLEM You are considering buying a new car and want to compare the yearly fuel costs for your car and for the new car. To find the yearly fuel cost you multiply the distance you travel in a year by the price per gallon and then divide by the number of miles per gallon your car averages.

You determine that you drive approximately 20,000 miles in one year and that you pay an average of $1.20 per gallon of gasoline.

Let x equal the number of miles per gallon your car averages.

a. Write an expression to represent the yearly fuel cost for your car.

b. The new car you want to buy gets five more miles to the gallon than your car. Write an expression to represent the yearly fuel cost for the new car.

c. Suppose your yearly fuel cost is $400 less if you buy the new car. Write and solve an equation to find the number of miles per gallon your old car and the new car will get.

d. What is the estimated yearly fuel cost for your old car? for your new car?