

Chapter 6

Practice Test 5

You are about to begin a full-length Practice Test. The test has four modules. The time allotted for each module is marked at the beginning of the module. Work on one module at a time. Use a timer to keep track of the time limits for every module.

Try to take the Practice Test under real test conditions. Find a quiet place to work, and set aside enough time to complete the test without being disturbed. At the end of the test, check your answers by referring to the Answer Key and fill in your raw score in the scorecard below. Also, note down the time taken by you for completing each module.

Pay particular attention to the questions that were answered incorrectly. Read the answer explanations and understand how to solve them.

My Score Card (Raw Score)

	Reading and Writing		Math	
	Module 1	Module 2	Module 1	Module 2
Out of	27	27	22	22
My Score				
Time Taken				

TEST BEGINS ON THE NEXT PAGE

Math

22 QUESTIONS | 35 MINUTES

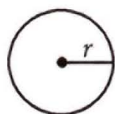
DIRECTIONS

The questions in this section address a number of important math skills. Use of a calculator is permitted for all questions.

NOTES

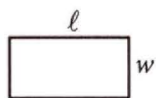
Unless otherwise indicated: • All variables and expressions represent real numbers. • Figures provided are drawn to scale. • All figures lie in a plane. • The domain of a given function is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

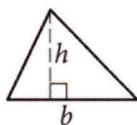


$$A = \pi r^2$$

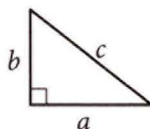
$$C = 2\pi r$$



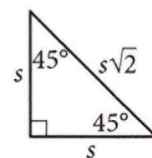
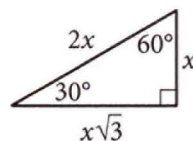
$$A = \ell w$$



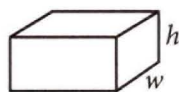
$$A = \frac{1}{2}bh$$



$$c^2 = a^2 + b^2$$



Special Right Triangles



$$V = \ell wh$$



$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is 2π .

The sum of the measures in degrees of the angles of a triangle is 180.

For **multiple-choice questions**, solve each problem, choose the correct answer from the choices provided, and then circle your answer in this book. Circle only one answer for each question. If you change your mind, completely erase the circle. You will not get credit for questions with more than one answer circled, or for questions with no answers circled.

For **student-produced response questions**, solve each problem and write your answer next to or under the question in the test book as described below.

- Once you've written your answer, circle it clearly. You will not receive credit for anything written outside the circle, or for any questions with more than one circled answer.
- If you find more than one correct answer, write and circle only one answer.
- Your answer can be up to 5 characters for a positive answer and up to 6 characters (including the negative sign) for a negative answer, but no more.
- If your answer is a fraction that is too long (over 5 characters for positive, 6 characters for negative), write the decimal equivalent.
- If your answer is a decimal that is too long (over 5 characters for positive, 6 characters for negative), truncate it or round at the fourth digit.
- If your answer is a mixed number (such as $3\frac{1}{2}$), write it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't include symbols such as a percent sign, comma, or dollar sign in your circled answer.

1

Alley bought a piece of land for \$47,890. It increased in value every year by 2%. Which of the following best describes the model of the price of the land every year after she bought it if t is the number of years after she bought the land?

- A) $47,890(1.02)^t$
- B) $47,890 + 0.02^t$
- C) $47,890(0.98)^t$
- D) $47,890(1.02)^t$

2

If $ax + bx - b + a = 5x - 2$, what is the value of $a^2 - b^2$?

- A) 3
- B) 5
- C) -10
- D) -2

3

If one of the solutions to the quadratic equation below is $1 + 2\sqrt{k}$, what is the value of k ?

$$y = 3x^2 - 6x - 21$$

4

If the length of a rectangle is 6 cm less than its width x , what is the length of the rectangle given that its area is 27cm^2 ?

- A) 9
- B) 21
- C) 6
- D) 3

5

Which of the following equations is equivalent to $7x + 14 = 7$?

- A) $3x + 6 = 3$
- B) $x - 2 = 1$
- C) $x = 3$
- D) $7x = 7$

6

How many possible integer values of x does the inequality below have?

$$|x + 3| < 7$$

7

The function $p(x)$ is defined by $p(x) = \left\{\frac{1}{8}\right\}^{-x}$,

what is the value of $p\left(\frac{1}{3}\right)$?

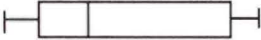
- A) 2
- B) 512
- C) $\frac{1}{2}$
- D) $\frac{1}{512}$

8

Which of the following is a factor of $f(x) = 6x^2 - 17x + 10$?

- A) $6x + 5$
- B) $x + 5$
- C) $x - 2$
- D) $x - 5$

9

Data set A 

 Data set B



Which of the following is true about the two data sets above?

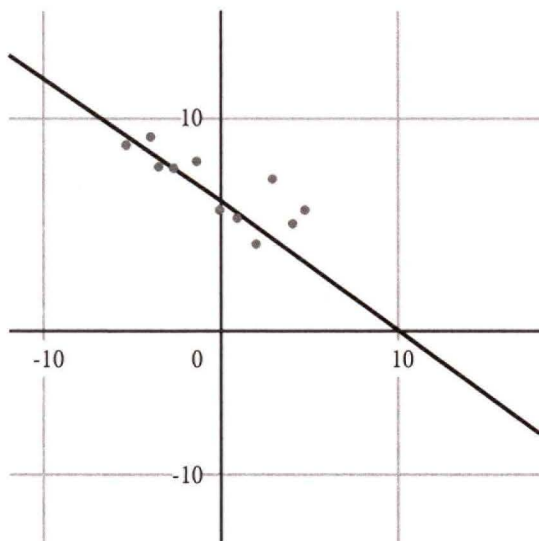
- A) The mean of data set A is less than the mean of data set B
- B) Data set A has more values than data set B
- C) The median of data set A is greater than the median of data set B
- D) The median of data set B is greater than the median of data set A

10

In the xy plane, the graph of the quadratic function f is a parabola with the vertex $(-2, 5)$. The function $g(x)$ is defined when the function $f(x)$ is translated 3 units to the left and 1 unit up. If (h, k) is the vertex of $g(x)$, what is the value of h ?

11

For how many points does the line of best fit predict a lower value than the actual point?



- A) 11
- B) 5
- C) 6
- D) 3

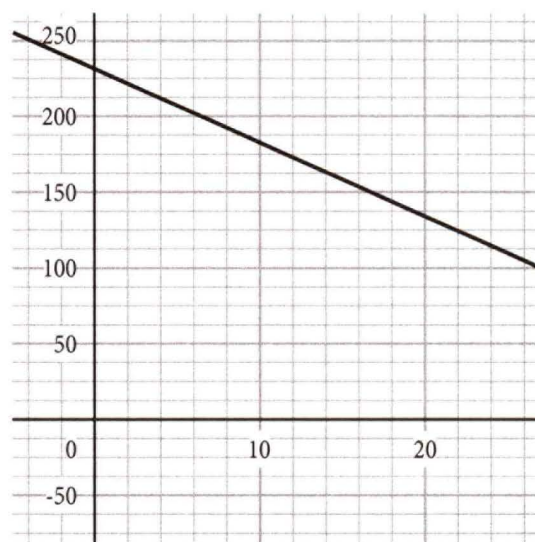
12

For all values of $x > 0$, which of the following is equivalent to $(x + \sqrt{2})^2 (x - \sqrt{2})^2$?

- A) $x^2 + 4x + 4$
- B) $x^4 + 4x^2 - 4$
- C) $2x^2 + 4$
- D) $x^4 - 4x^2 + 4$

13

A baker has the graph below which models its daily expenditure for the month of August. Which of the following expressions best describes the equation of the function?



- A) $y = 231 - 4.85x$
- B) $y = 231 + 0.85x$
- C) $y = 4.85x - 231$
- D) $y = 4.85x + 231$

14

A school has 24 girls and 20 boys. If $\frac{3}{5}$ of the boys are on the track team and $\frac{3}{4}$ of the girls are not on the track team, what percentage of the students are on the track team? (round off to the nearest whole number)

15

If (a, b) are solutions to the system of inequalities below, what is the minimum value of b ?

$$y > 2(x - 2)^2 - 2$$

$$y \geq -1$$

- A) 2
- B) -2
- C) 0
- D) -1

16

Which of the following equations is equivalent to $2x^2 + 28x = -98$?

I. $2(x + 7)^2 = 0$

II. $2(x - 7)^2 = 0$

- A) I
- B) All of them
- C) II
- D) Neither of them

17

$$3y - 2x = 6$$

$$5y - 4x = 8$$

If the system of equations above has a solution (x, y) , what is the value of $2x + y$?

18

A survey was conducted in a school on the change of uniforms. The conclusion of the survey was that 53 students of the 97 students surveyed are in favor of the proposed change. If there are 2,300 students in the school, approximately how many students are not in favor of the change in school uniform?

- A) 1,256
- B) 1,043
- C) 2,300
- D) 1,093

19

If the system below has no solution, what is the value of p ?

$$y = 3x + 5 - \frac{8}{3}(x + 3) \text{ and } y = px + 4$$

- A) 1
- B) $\frac{1}{3}$
- C) $\frac{5}{3}$
- D) $\frac{2}{3}$

20

If the system below has infinite solutions, what is the value of k ?

$$y = 5(x - 2) + x + 3 \text{ and } y = k(x - 2) + 2x + 1$$

21

A square is inscribed in a circle. If the circle has a radius of 12cm , what is the length of one side of the square?

- A) 24
- B) 12
- C) $4\sqrt{3}$
- D) $12\sqrt{2}$

22

x	0	1	2	3
y	4	4	4	4

The table above represents the equation $y = 2k$. What is the value of k ?

- A) 4
- B) 2
- C) 8
- D) 1