

Chapter 4

Practice Test 3

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

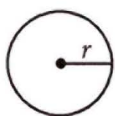
DIRECTIONS

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

NOTES

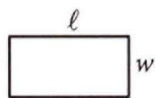
Unless otherwise indicated: • All variables and expressions represent real numbers. • Figures provided are drawn to scale. • All figures lie in a plane. • The domain of a given function is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

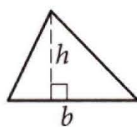


$$A = \pi r^2$$

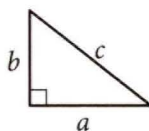
$$C = 2\pi r$$



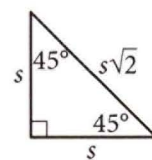
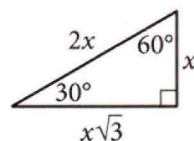
$$A = \ell w$$



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



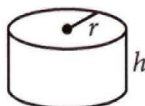
$$c^2 = a^2 + b^2$$



Special Right Triangles



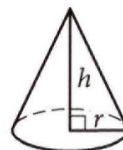
$$V = \ell wh$$



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



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



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



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

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

Which of the following describes the transformation of a circle with the equation $(x - 3)^2 + (y + 6)^2 = 49$ to a circle with the equation $(x - 2)^2 + y^2 + 8y = 33$?

- A) The circle moves 1 to the right and 2 up
- B) The circle moves 1 to the right and 2 down
- C) The circle moves 1 to the left and 2 up
- D) The circle moves 1 to the left and 2 down

2

How many solutions are there to the equation below?

$$(x - 1)(x + 2) = x(x - 3)$$

- A) 0
- B) 1
- C) 2
- D) 4

3

If the system below has an infinite number of solutions, what would be the value of p ?

$$3(x - 6) - 2(x + 2) = px - 5x - 22$$

4

If the number of weeds on a farm is represented by the function $f(x) = 1,300(1.995)^x$, where x is in weeks, which of the following statements is true about the model?

- A) The number of weeds on the farm in the beginning was 1.995
- B) The number of weeds on the farm increases by 1.995 every x weeks
- C) The number of weeds on the farm increases by 99.5% every x weeks
- D) The number of weeds on the farm increases by 1,300 every x weeks

5

Which of the following is equivalent to $(x - 2)^2(x + 2)^2$?

- A) $x^4 - 8x^2 + 16$
- B) $x^4 - 16$
- C) $x^4 + 8x + 16$
- D) $x^4 + 16$

6

A food scientist measures 27 different foods whose calorie content is shown below. What is the difference between the mean and the median of the calorie content of the 27 foods, rounded to the nearest tenth of a calorie?

Calorie content	Frequency
100	6
180	9
280	11
350	1

7

What is the x -intercept for the following equation

$$x = 3^{y-1} + \frac{5}{3} ?$$

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

8

30 Grade 11 students in a summer math class were asked what is the hardest subject for them. 80% of the students said that Statistics was the hardest while the rest chose Physics as the hardest subject. Which of the following statements can best be concluded from this information?

- A) 80% of the students in the summer math class think Statistics is the hardest subject.
- B) 20% of the Grade 11 students think Statistics is the hardest subject.
- C) 80% of the Grade 11 students in the math summer class think Physics is the hardest subject.
- D) 20% of the grade 11 students in the math summer class think Physics is the hardest subject.

9

If $-3(x + 3)^2 + 9 + x = ax^2 + bx + c$, what is the value of $a + b + c$?

10

If the maximum point for a quadratic equation $f(x)$ is $(3, 2)$, and it passes through the point $(2, 0)$, which of the following is a solution for x to the quadratic equation?

- A) -2
- B) 4
- C) -16
- D) 12

11

What is the value of the slope of a line that passes through the origin and point $(3, 5)$?

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

12

If (a, b) is a solution to the following system of inequalities, which of the following represents the minimum value of b ?

$$y \geq 2(x - 3)^2 + 5$$

$$y \leq x + 3$$

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

13

What is the volume of a sphere with a radius of 3?

14

If the system of equations below has no solution, which of the following would be a possible value of p ?

$$3x - 4y = 8$$

$$px + 8y + 6 = 0?$$

- A) -6
- B) 6
- C) 2
- D) -2

15

What is the center for the equation of the circle given below

$$x^2 + 6x + y^2 - 6y = 63?$$

- A) (3, -3)
- B) (6, -6)
- C) (-6, 6)
- D) (-3, 3)

16

If one of the solutions for the quadratic equation below is $\frac{3+\sqrt{g}}{3}$, what is the value of g ?

$$3x^2 - 6x - 11$$

17

Which of the following is NOT a solution to the following inequality

$$-2x \geq -4 - x?$$

- A) 4
- B) 5
- C) 3
- D) 2

18

What are the possible solutions to the equation below

$$\sqrt{2x+5} = x-5?$$

- A) 2
- B) 10
- C) 2 and 10
- D) -2 and -10

19

If $\frac{5}{x} = \frac{2}{y}$ and $\frac{4}{x} - \frac{2}{y} = -\frac{1}{5}$, what is the value of xy ?

20

If $\frac{3x^2+7x+9}{x-2} = 3x+13 + \frac{A}{x-2}$. What is the value of A ?

- A) 19
- B) 7
- C) 35
- D) -23

21

A zookeeper conducted a study on the mass of penguins in the zoo. He found that the mean mass of the penguins in the zoo is 67.9 *kgs*. He estimated that the margin of error for the mean mass is 4.5 *kgs*. Which of the following statements can best be concluded from the study he conducted?

- A) The mass of the penguins in the zoo is between 72.4 *kgs* and 63.4 *kgs*.
- B) The mass of all penguins is 67.9 *kgs*.
- C) The median mass of penguins in the zoo lies between 72.4 *kgs* and 63.4 *kgs*.
- D) The mean mass of the penguins in the zoo lies between 72.4 *kgs* and 63.4 *kgs*.

22

How many solutions does the system below have ?

$$3(x - 3) + 2(x + y) = 5x + 2y - 9$$

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