

Chapter 5

Practice Test 4

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

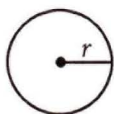
DIRECTIONS

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

NOTES

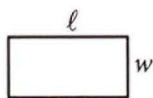
Unless otherwise indicated: • All variables and expressions represent real numbers. • Figures provided are drawn to scale. • All figures lie in a plane. • The domain of a given function is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

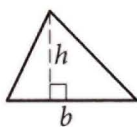


$$A = \pi r^2$$

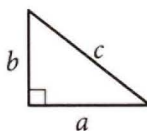
$$C = 2\pi r$$



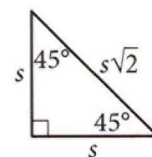
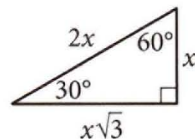
$$A = \ell w$$



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



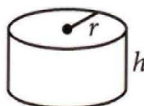
$$c^2 = a^2 + b^2$$



Special Right Triangles



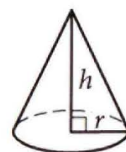
$$V = \ell wh$$



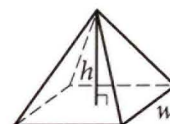
$$V = \pi r^2 h$$



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



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



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

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.

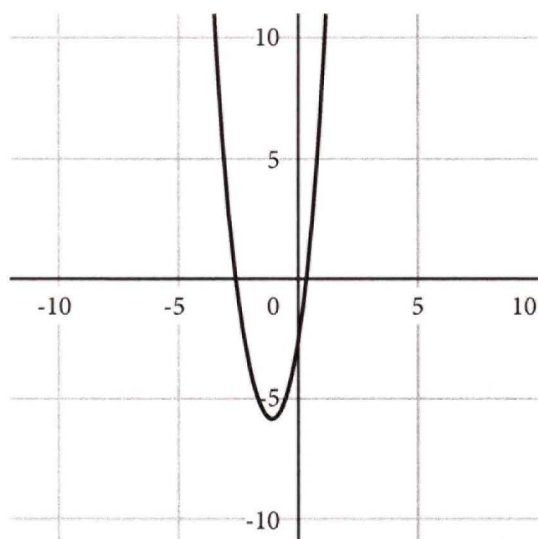
For **multiple-choice questions**, solve each problem, choose the correct answer from the choices provided, and then circle your answer in this book. Circle only one answer for each question. If you change your mind, completely erase the circle. You will not get credit for questions with more than one 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 represents the equation of the graph below?



- A) $y = 3x^2 - 6x - 3$
- B) $y = -3x^2 + 6x - 3$
- C) $y = 3x^2 + 6x - 3$
- D) $y = -3x^2 - 6x - 3$

2

What is the product of the solutions in the equation below?

$$3x^2 - 12x - 15 = 0$$

3

A standard 52-card deck consists of 13 hearts, 13 spades, 13 clubs, and 13 diamonds. If the first card picked randomly is a heart and is not put back on the deck, what is the probability of picking a second heart card from the deck?

- A) $\frac{13}{52}$
- B) $\frac{12}{52}$
- C) $\frac{12}{51}$
- D) $\frac{39}{51}$

4

Which expression is equivalent to $6xy(y + 3x) - 2x(3xy + y^2)$?

- A) $12xy^2 + 12x^2y$
- B) $4xy^2 + 12x^2y$
- C) $4xy^2 - 12x^2y$
- D) $12x^2y - 4xy^2$

5

The price of a dress, which originally cost \$200, increased by 15% on 15th May 2021. Mary bought the same dress on the 23rd of May 2021 at a 30% discount. How much did she pay for the dress?

6

If $x^2 - y^2 = 12$ and $x - y = 2$, what is the value of $x + y$?

- A) 6
- B) 4
- C) 2
- D) -2

7

What is the value of xy for the system below?

$$2x + y = 2$$

$$3y - x = 20$$

- A) -12
- B) -2
- C) 6
- D) -3

8

What is the positive value of x for the following equation?

$$2|x + 4| = 12$$

9

A researcher collected a sample of 12 height samples from his local mall and wrote them down in meters.

The data he collected are 1.23, 1.45, 1.67, 1.53, 1.12, 1.23, 1.25, 1.39, 1.73, 1.84, 1.39, and 1.09.

Which of the following statements is correct when he collects a last-minute sample of $2.23m$?

- A) The mean and the range will increase and the median and standard deviation will decrease
- B) The mean, range, and standard deviation will increase and the median remains the same
- C) The mean, range, median, and standard deviation will increase
- D) The mean, range, median and standard deviation will decrease

10

A circle is inscribed in a square. If the square has a side length of $14cm$, what is the area of the circle?

- A) 196π
- B) 49π
- C) 14π
- D) 98π

11

What is the new y -intercept of the function $f(x)$ below if the line is moved 2 units to the left and 1 unit up?

$$f(x) = 3x + 5$$

12

Which of the following coordinates is a solution to the following system of inequalities?

$$-2y > -4$$

$$3x - y > 3$$

- A) (1, 2)
- B) (1, 3)
- C) (2, 4)
- D) (3, 1)

13

A circle has endpoints of a diameter with the coordinates of $(-6, 10)$ and $(2, 10)$. Which of the following is an equation for the circle?

- A) $(x - 2)^2 + (y - 10)^2 = 16$
- B) $(x + 2)^2 + (y - 10)^2 = 16$
- C) $(x + 2)^2 + (y + 10)^2 = 16$
- D) $(x - 2)^2 + (y + 10)^2 = 16$

14

If $f(x) = x + 2$ and $g(x) = 2x + 3$, find $f(g(2))$.

- A) 7
- B) 4
- C) 9
- D) 11

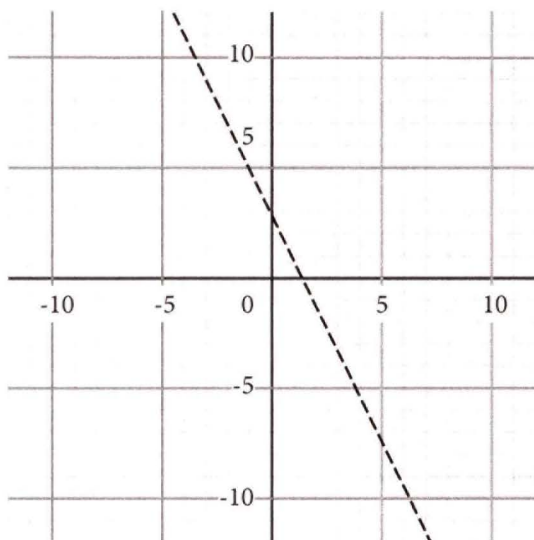
15

What is the y -intercept of the function below?

$$y = 300^x + 5$$

16

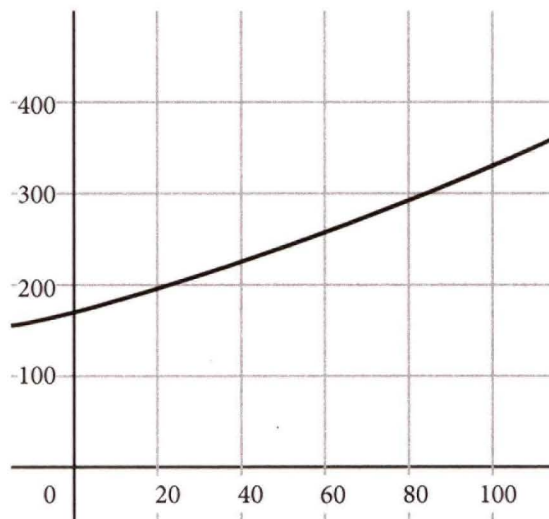
If the shaded region represents the solutions to an inequality, which of the following inequalities is represented by the graph below?



- A) $y > 2x + 3$
- B) $y > -2x + 3$
- C) $y < -x + 3$
- D) $y < -2x + 3$

17

Which of the following expressions is represented by the graph below?



- A) $400(1.03)^{0.2x}$
- B) $180(0.97)^{0.2x}$
- C) $180(1.03)^{0.2x}$
- D) $400(0.97)^{0.2x}$

18

If $3x + 2(x + 4y) = ax + by$, what is the value of a ?

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

19

Using interval notation, what is the value of y in the inequality below?

$$-3y > -15$$

20

If $\sin(3x) = \cos(x + 10)$, what is the value of x in degrees?

- A) 5°
- B) 20°
- C) 30°
- D) 60°

21

Amanda is planning a trip and decides to save for it. She saves \$10 dollars during the first week and doubles the amount she saves every week thereafter. Which type of function below best represents the amount that she will save in a given week?

- A) Exponential growth
- B) Linear growth
- C) Exponential decay
- D) Linear decay

22

If $4x + 8 = 24$, what is the value of x ?

- A) 8
- B) 4
- C) 3
- D) 6