



MATHEMATICS TEST
60 Minutes—60 Questions

DIRECTIONS: Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose,

but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

1. Two enterprising college students decide to start a business. They will make up and deliver helium balloon bouquets for special occasions. It will cost them \$39.99 to buy a machine to fill the balloons with helium. They estimate that it will cost them \$2.00 to buy the balloons, helium, and ribbons needed to make each balloon bouquet. Which of the following expressions could be used to model the total cost for producing b balloon bouquets?
A. $\$ 2.00b + \39.99
B. $\$37.99b$
C. $\$39.99b + \$ 2.00$
D. $\$41.99b$
E. $\$79.98b$
2. What is the value of the expression $(x - y)^2$ when $x = 5$ and $y = -1$?
F. 4
G. 6
H. 16
J. 24
K. 36
3. On the first day of school, Mr. Vilani gave his third-grade students 5 new words to spell. On each day of school after that, he gave the students 3 new words to spell. In the first 20 days of school, how many new words had he given the students to spell?
A. 28
B. 62
C. 65
D. 68
E. 152
4. Which of the following is equivalent to $(4x^2)^3$?
F. $64x^8$
G. $64x^6$
H. $12x^6$
J. $12x^5$
K. $4x^6$
5. Which of the following lists all the positive factors of 8?
A. 1, 8
B. 2, 4
C. 2, 4, 6
D. 8, 16, 32
E. 1, 2, 4, 8
6. Which of the following is an equivalent simplified expression for $2(4x + 7) - 3(2x - 4)$?
F. $x + 2$
G. $2x + 2$
H. $2x + 26$
J. $3x + 10$
K. $3x + 11$
7. To determine a student's overall test score for the semester, Ms. Lopez throws out the lowest test score and takes the average of the remaining test scores. Victor earned the following test scores in Ms. Lopez's class this semester: 62, 78, 83, 84, and 93. What overall test score did Victor earn in Ms. Lopez's class this semester?
A. 67.6
B. 80.0
C. 83.0
D. 83.5
E. 84.5
8. Uptown Cable, a cable TV provider, charges each customer \$120 for installation, plus \$25 per month for cable programming. Uptown's competitor, Downtown Cable, charges each customer \$60 for installation, plus \$35 per month for cable programming. A customer who signs up with Uptown will pay the same total amount for cable TV as a customer who signs up with Downtown if each pays for installation and cable programming for how many months?
F. 3
G. 6
H. 10
J. 18
K. 30