Student Name _____

Form 101

Georgia End-Of-Course Tests

Algebra I
Released Test Booklet
Spring 2004

SECTION I

Directions:

Today you will be taking the Algebra I End-of-Course Test. Read each question carefully and then choose the *best* answer.

Be sure that the question number on the answer sheet matches the number on the test. Then mark your answer by filling in the circle on your answer sheet. Do not write your answers in the test booklet. If you do not know the answer to a question, skip it and go on. You may return to it later if time permits.

If you need to change an answer on your answer sheet, be sure to erase your first mark completely. Do not make any stray marks on the answer sheet.

If you finish the section of the test, you may review your answers in that section only. You may not go on to the next section or return to a previous section.

The two practice test questions below are provided to show you what the questions in the test are like. For each question, you should choose the one *best* answer and fill in the circle in the space provided on your answer sheet.

Practice Items:

P1 **A store is advertising notebook paper in a back-to-school sale as "Buy one, get one free." The store posted the table below, but one value is missing.**

Number of Packages	2	4	6	8	10
Total Cost	\$0.50	\$1.00	\$1.50	\$2.00	?

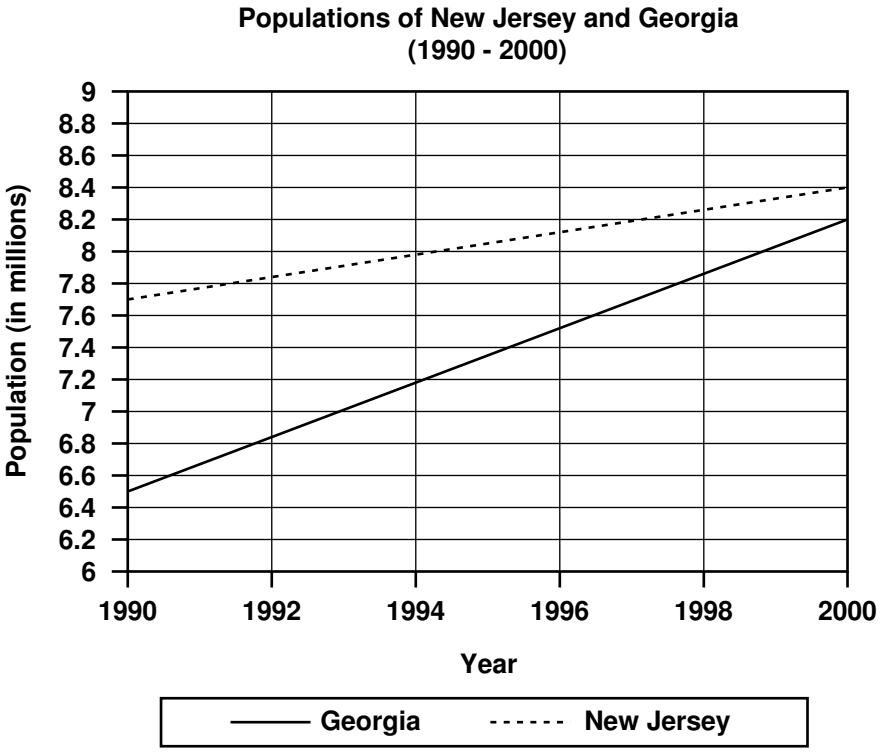
What value will correctly complete the pattern in the table?

A \$2.00
B \$2.25
C \$2.50
D \$3.00

P2 **In the equation $y = 2x$, what is the value of y when $x = 3$?**

A 5
B 6
C 7
D 9

Use the graph below to answer question 1. For this question, assume that population growth is linear.



1 **In what year will the population of Georgia equal the population of New Jersey?**

A 2002
B 2004
C 2006
D 2008

2 **Which expression BEST approximates $6.81 \times 7.82 \times 8.49$?**

A $6 \times 7 \times 8$
B $6 \times 7 \times 9$
C $7 \times 8 \times 8$
$7 \times 8 \times 9$

3 **Which expression is equivalent to $(2x^3)(x^5)$?**

A x^{10}
B $2x^8$
C $2x^{15}$
D $3x^8$

4 **What polynomial equals $(x+6)(2x-3)$?**

A $2x^2 + 9x - 18$
B $2x^2 + 12x + 3$
C $x^2 + 8x - 9$
D $x^2 - 11x + 6$

5 **Which expression correctly uses the distributive property to rewrite the expression $7(y+5)$?**

A $5 + 7y$
B $5(7 + y)$
C $7y + 35$
D $12(7 + y)$

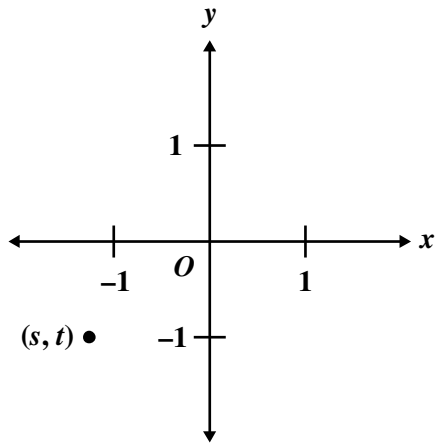
6 **Suzy is competing in a long-distance bicycle race. In the first 6 hours, she completed 132 miles of the race. If she plans to ride 7 hours per day, how many days will it take for her to complete the 616-mile race at the same rate?**

A 2
B 4
C 6
D 8

7 **What is d if $94 = 2d + 80$?**

A 2
B 4
C 7
D 8

8 **If (s, t) denotes the coordinates of the point shown in the graph below, which of the following must be true?**



A $s > 0$ and $t > 0$
B $s > 0$ and $t < 0$
C $s < 0$ and $t > 0$
D $s < 0$ and $t < 0$

9 **What is the equation of a line that has a slope of $\frac{3}{4}$ and an x-intercept of 0?**

A $y = 0$

B $y = \frac{3}{4}$

C $y = \frac{3}{4}x$

D $y = x + \frac{3}{4}$

10 **What does $8 \div 4 \times 2 + 2$ equal?**

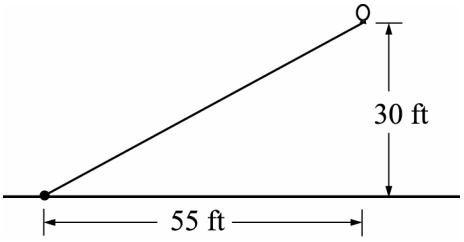
A $\frac{1}{2}$

B 3

C 6

D 8

11 **A long string with a balloon at the end was tied to the ground. After a breeze came up, the balloon was 55 feet to the right of where it was tied and 30 feet above the ground, as shown in the figure below.**



What is the slope of the line between the balloon and the point where it was tied?

A $\frac{6}{11}$

B $\frac{11}{6}$

C 30

D 55

12 **If $\frac{x}{5} = \frac{4}{15}$, what is the value of x?**

A $\frac{4}{75}$

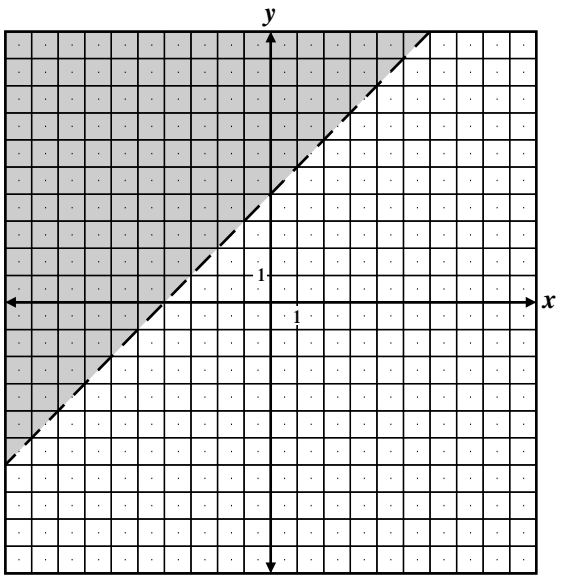
B $\frac{1}{3}$

C $\frac{4}{3}$

D $\frac{75}{}$

13 **Which of these shows the inequality $y > 4 - x$?**

A



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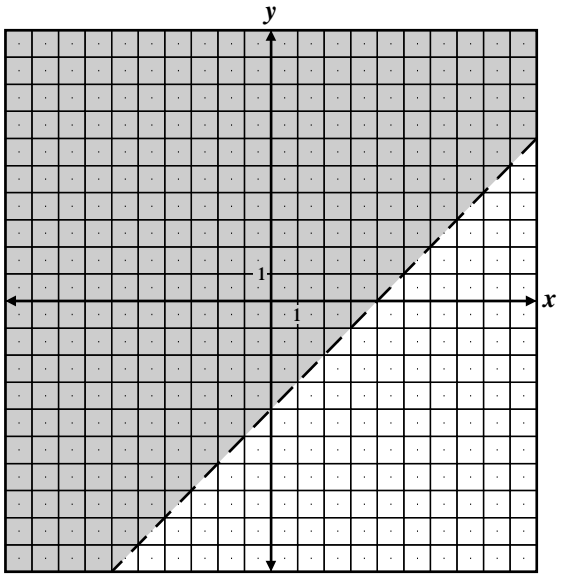

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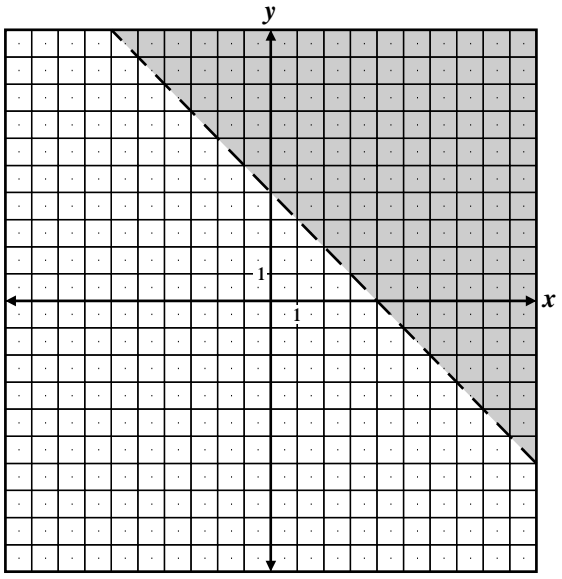

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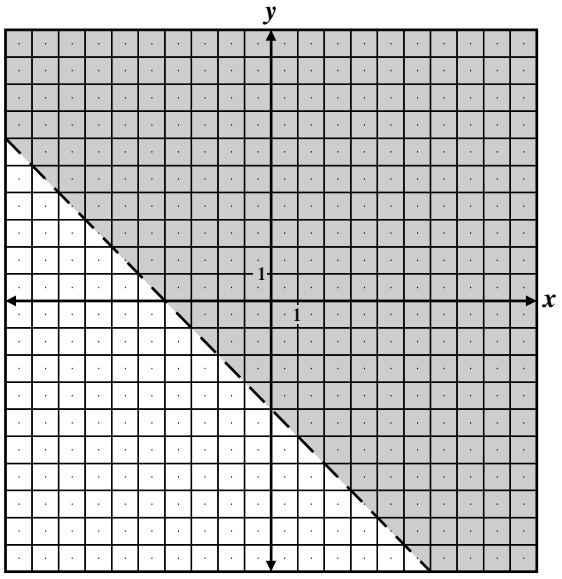
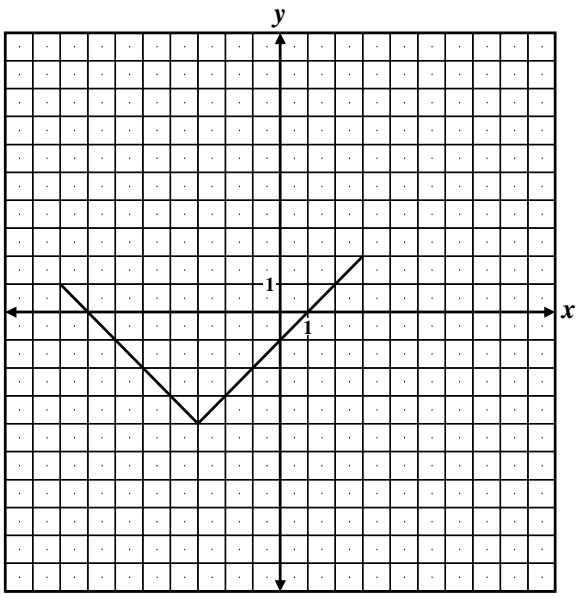


14 **Which of the following BEST describes the domain of the relation graphed below?**



A $\{y \text{ such that } -8 \le y \le 2\}$
B $\{x \text{ such that } -4 \le x \le 3\}$
C $\{y \text{ such that } -4 \le y \le 2\}$
D $\{x \text{ such that } -8 \le x \le 3\}$

15 **If $\frac{k-3}{9} = \frac{2}{3}$, what is the value of k?**

A 3
B 6
C 7
D 9

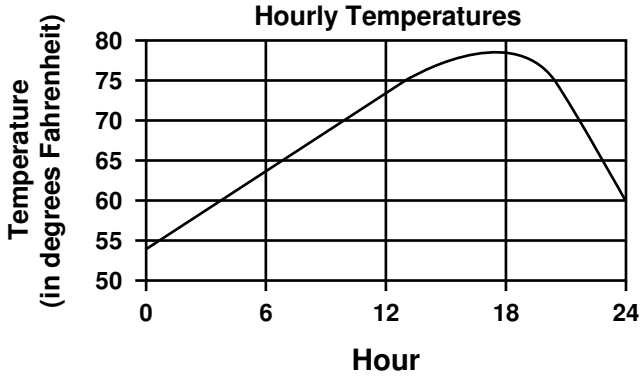
16 **Jerry had k pencils. Darcy and Leonard then gave Jerry an additional x pencils each. Which expression could represent the number of pencils Jerry has now?**

A $k + x$
B $k + 2x$
C $2k + x$
D $2(k + x)$

17 **Jamie rolls two six-sided number cubes. What is the probability that the sum of the numbers on the cube faces will be greater than or equal to 7?**

A $\frac{1}{3}$
B $\frac{19}{36}$
C $\frac{5}{9}$
D $\frac{21}{36}$

18 **The graph below shows the outside temperature recorded every hour for a 24-hour period in Larry's hometown.**



What is the range of this graph?

A 54°F to 78°F
B 1 hour to 24 hours
C 54°F to 60°F
D 24 hours to 80 hours

19 **Which expression represents $y^4 - 36$ in simplest factored form?**

A $(y^2 + 4)(y^2 - 9)$

B $(y^2 + 4)(y - 3)(y + 3)$

C $(y^2 + 6)(y^2 - 6)$

D $(y^4 - 36)(y + 1)$

20 **The time that it takes to fill a tank depends upon the rate at which the water is flowing. It takes 40 minutes to fill the tank at the rate of 3 gallons per minute. How many minutes will it take to fill the tank at the rate of 4 gallons per minute?**

A $\frac{12}{40}$

B 30

C 50

D $53\frac{1}{3}$

21 **FIELD TEST ITEM**

22 **FIELD TEST ITEM**

23 **FIELD TEST ITEM**

24 **What is the value of $|3x - 2|$ when $x = -7$?**

A −23
B −19
C 19
D 23

25 **Use the chart to answer the question.**

Hospital Volunteer Hours	
Name	**Hours Worked**
Jan	104
Amy	98
Tom	120
Chris	105
Stephanie	102

What is the median number of hours these students worked?

A 100
B 103
C 104
D 120

26 **Shelby will take a total of 6 tests. On the first 5 tests, her scores were: 80, 85, 73, 78, 90. If she wants a mean grade of 80, what does Shelby have to score on her 6th test?**

A 74
B 80
C 84
D 90

27 **Which expression is a factor of $4x^2 + 10x + 6$?**

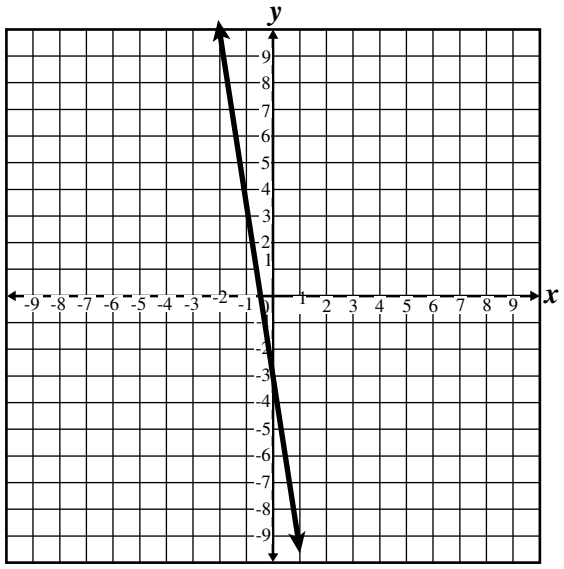
A $2(x + 3)$
B $2x + 3$
C $4(x + 3)$
D $4x + 3$

28 **For the scale model of an airplane Jaime is building, 4 feet is proportional to 6 inches. If the length of the airplane Jaime is modeling is 20 feet, what will be the length of his model?**

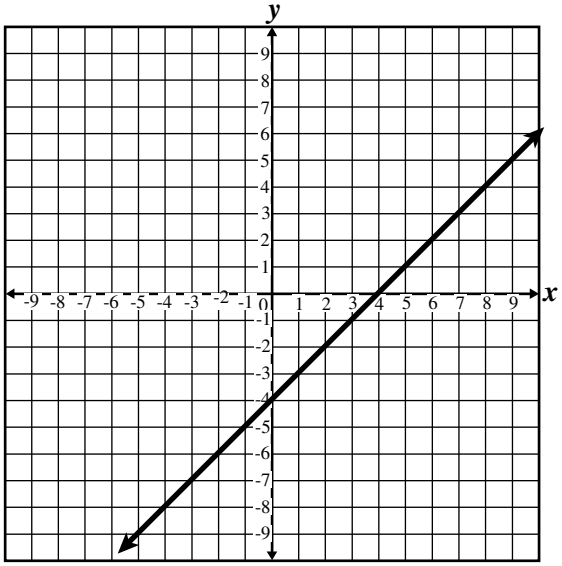
A 13 inches
B 24 inches
C 28 inches
30 inches

29 **Which graph shows the line that goes through the point $(3, -1)$ and has a y-intercept of -4?**

A



C



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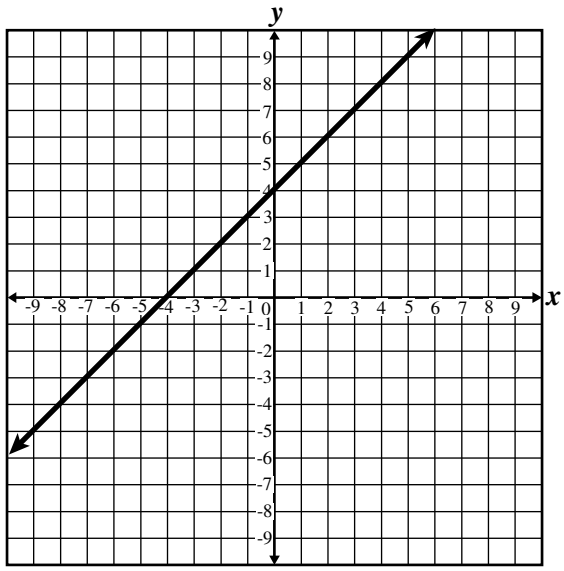

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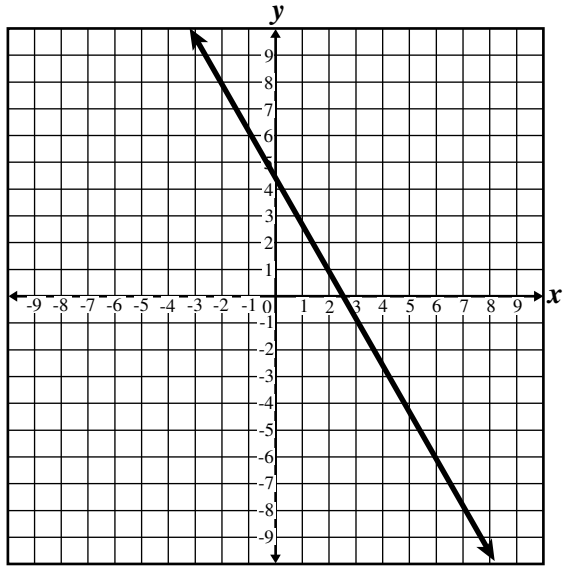
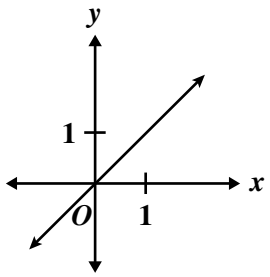


30 **Which expression is equivalent to $(2x+4)-(3x^2+2x-1)$?**

A $-3x^2+3$
B $-3x^2+5$
C $-3x^2+4x+3$
D $-6x^3-16x^2-6x+4$

31 **Which of the following is the graph of a line with a slope of 1?**

A



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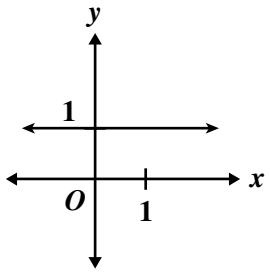

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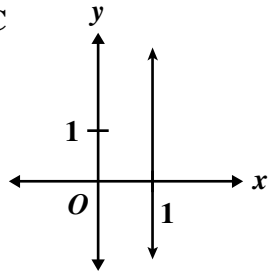

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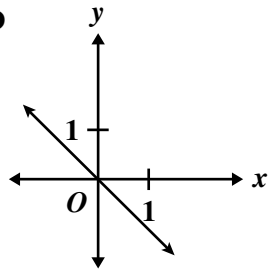


32 **Which expression is equivalent to $\frac{2^4ab^5}{4a^4b^2}$?**

A $\frac{2b^7}{a^5}$

B $\frac{4b^3}{a^3}$

C $2a^3b^3$

D $4a^5b^7$

33 **What percent of 250 is 75?**

A 3%
B 5%
C 30%
D 50%

34 **What value of t satisfies the equation below?**

$$\frac{4}{3t}=24$$

A $t=\frac{1}{18}$

B $t=\frac{1}{2}$

C $t=2$

D $t=18$

35 **In a game, the two players scored a total of 121 points. One player had 13 more points than the other player. How many points did the player with the fewer points score?**

A 52
B 54
C 67
D 108

36 **Nancy determined that 48 out of the 108 students in tenth grade play a musical instrument. What fraction of the students plays a musical instrument?**

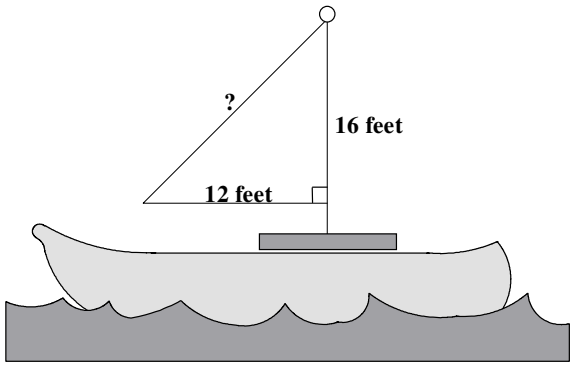
A $\frac{8}{27}$

B $\frac{1}{3}$

C $\frac{4}{9}$

D $\frac{4}{5}$

37 **What is the measure of the missing side of the sail?**



A 18 feet
B 20 feet
C 22 feet
D 24 feet

38 **If $5x - 14 \geq 0$, what is the LEAST possible value of x?**

A $-\frac{14}{5}$

B $-\frac{5}{14}$

C $\frac{5}{14}$

D $\frac{14}{5}$

39 **In the equations below, a is the price, in dollars, of an adult ticket to a school play, and s is the price of a student ticket.**

$$5a + 3s = 42$$
$$3a + s = 22$$

What is the price of an adult ticket to the play?

A \$4
B \$5
C \$6
D \$10

40 **If $C = \frac{5}{9}(F - 32)$, where C is the temperature in degrees Celsius and F is the temperature in degrees Fahrenheit, what is the value of C when $F = 86$?**

A 30
B 32
C 45
D 54

41 **FIELD TEST ITEM**

42 **FIELD TEST ITEM**

43 **FIELD TEST ITEM**

44 **FIELD TEST ITEM**

45 **FIELD TEST ITEM**

STOP

STOP WORK

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SECTION II

Do not turn page until instructed to do so.

46 **The stem-and-leaf plot below shows the heights of 17 students.**

	Height (in inches)
5	9
6	0 1 2 2 4 5 6 7 8 8 8 9
7	0 1 2 2

Key: 5 | 9 represents 59 inches.

What is the mode of the heights?

A 62 in.
B 67 in.
C 68 in.
D 72 in.

47 **The line with equation $y = 10x - 2$ intersects the x-axis at the point $(a, 0)$. What is the value of a?**

A -2

B $\frac{1}{5}$

C 5

D 10

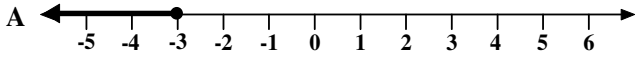
48 **Which number equals $3\sqrt{56}$?**

A $6\sqrt{14}$
B $12\sqrt{7}$
C $15\sqrt{6}$
D $8\sqrt{28}$

49 **Which graph shows the values of x that satisfy the inequality below?**

$$2x \geq -6$$

A



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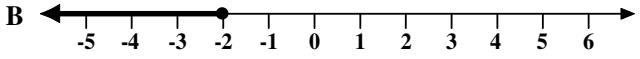

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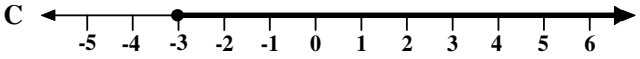

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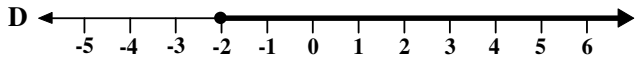


50 **A fair cube has 3 yellow faces, 2 red faces, and 1 blue face. If the cube is rolled once, what is the probability that the face that lands up is red?**

A $\frac{1}{6}$

B $\frac{1}{3}$

C $\frac{1}{2}$

D $\frac{2}{3}$

51 **Which expression is the same as $(a^2b^{-3})^{-4}$?**

A a^2b^7

B $\frac{1}{a^2b^7}$

C $\frac{b^{12}}{a^8}$

D $\frac{a^8}{b^{12}}$

52 **Suppose that 3 times x is 2 more than y.**

Which equation below best represents the relationship between x and y?

A $3x = 2y$
B $3 + x = y + 2$
C $3x = y + 2$
D $3x + 2 = y$

53 **Which equation of a line is perpendicular to the line given by the equation $y = \frac{2}{3}x - 6$?**

A $y = -\frac{3}{2}x + 1$

B $y = -\frac{2}{3}x + 1$

C $y = \frac{2}{3}x + 1$

D $y = \frac{3}{2}x + 1$

54 **If $\frac{x+1}{2} = \frac{2x}{3}$, what is the value of x?**

A $\frac{1}{2}$

B 1

C $\frac{3}{2}$

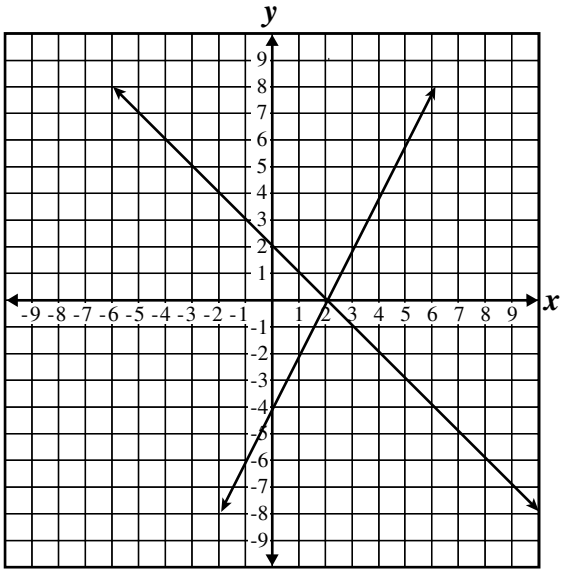
D 3

55 **The length of a rectangle is 8 inches and the width is 3 inches. Which expression could be used to determine the perimeter of the rectangle?**

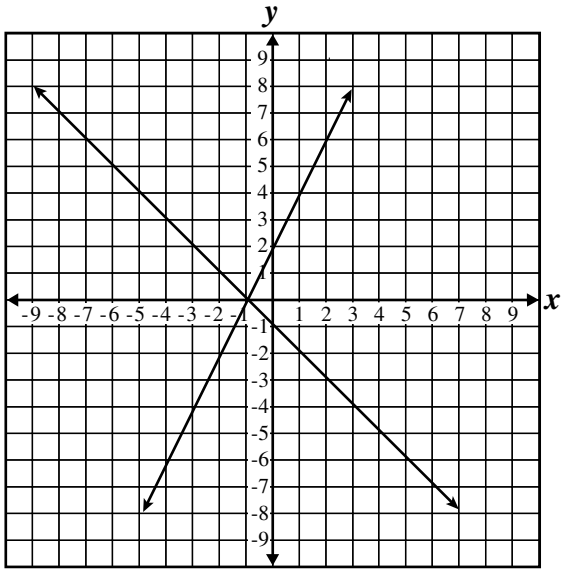
A $8 + 3$
B 8×3
C $2(8 + 3)$
D $2(8 \times 3)$

56 **Which of these graphs represents the solution to the system of equations $y = 2 - x$ and $y = 2x + 2$?**

A



C



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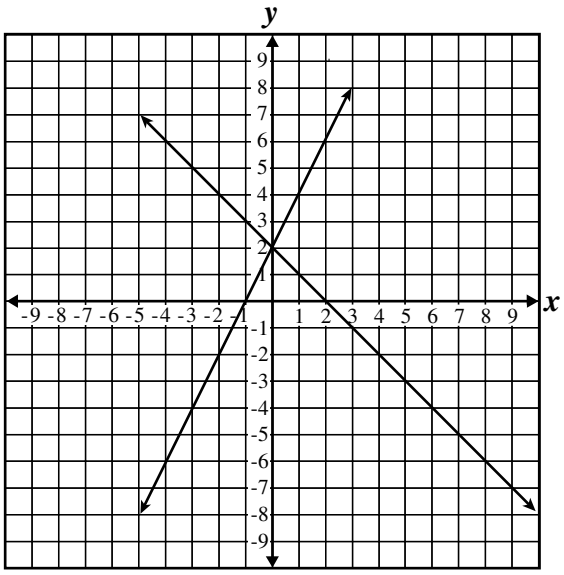

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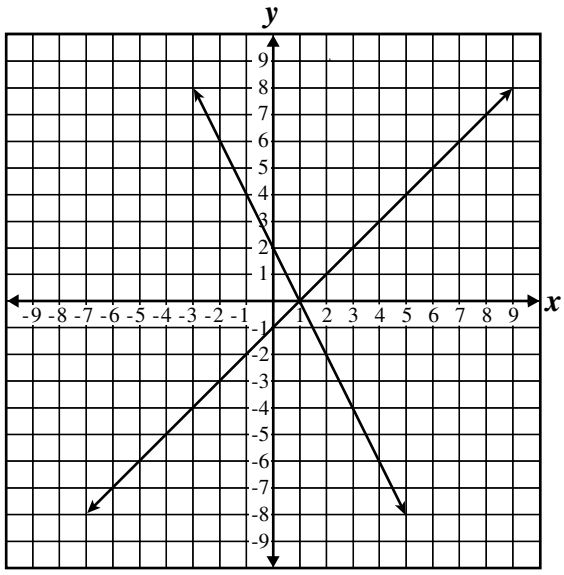


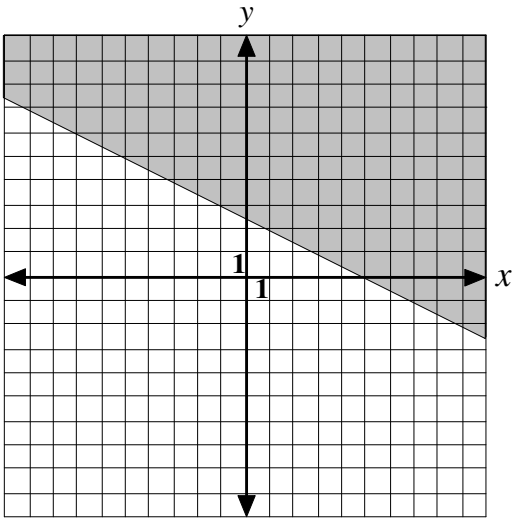
57 **Which expression equals $\left(4xy^2z^3\right)^2$?**

A $4x^2y^4z^6$
B $8x^2y^4z^6$
C $16x^2y^4z^6$
D $16x^3y^4z^5$

58 **If $x^2+13x+30=0$, what are the possible values of x?**

A -5 and -6
B -3 and -10
C 3 and 10
D 5 and 6

59 **The graph below shows the solution set for which inequality?**



A $-x+2y\le 5$
B $x+2y\le 5$
C $-x+2y\ge 5$
D $x+2y\ge 5$

60 **FIELD TEST ITEM**

61 **FIELD TEST ITEM**

62 **Which of these real numbers is also an integer?**

A 0.2

B $\frac{1}{2}$

C $\sqrt{3}$

D 5

63 **What values of x satisfy $x^2 + 2x = 24$?**

A $-6, -4$

B $-6, 4$

C $6, -4$

D $6, 4$

64 **Which of the following is a factor of $6x^2 - 13x + 5$?**

A $x + 1$

B $2x - 1$

C $3x + 1$

D $6x - 1$

65 **Joseph is buying 9 tapes. He found tapes on sale at 3 for \$20. Which expression can be used to find the cost of 12 tapes, before tax?**

A 3×20

B 12×20

C $(12 \div 3) \times 20$

D $(20 \div 12) \times 3$

66 **What is the equation of the line passing through the points (5, 5) and (5, 10)?**

A $x = 5$

B $y = 5$

C $y = x + 5$

D $y = x + 10$

67 **What is the slope of the line with equation $3y + 5x = 4$?**

A -5

B $-\frac{5}{3}$

C $\frac{3}{5}$

D 3

68 **A taxi charges \$1.25 plus \$0.75 for each one-fourth of a mile. At this rate, how much would a 3-mile ride in the taxi cost?**

A \$5.25

B \$7.75

C \$9.00

D \$10.25

69 **Which of the following is an equation of the line with an x-intercept of -5 and a y-intercept of 5?**

A $y = x - 5$

B $y = x + 5$

C $y = 5x - 5$

D $y = 5x + 5$

70 **What number equals $|3|+|-4|-|-8|$?**

A -7
B -1
C 1
D 15

71 **If $u^2+\frac{2}{3}u+\frac{1}{9}=0$, which of the following is true about the value of u?**

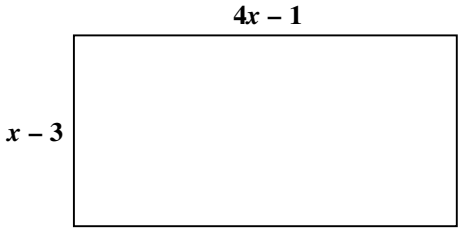
A $u=-\frac{1}{3}$

B $u=\frac{1}{3}$

C $u=-\frac{2}{3}$

D $u=\frac{2}{3}$

72 **Cori drew a rectangle with expressions that give the length and width, as shown below.**



What is the difference between the longer side and the shorter side?

A $3x-4$
B $3x-2$
C $3x+2$
D $3x+4$

73 **A bookcase in a classroom contains textbooks that weigh 0.8 pound each. The bookcase alone weighs 22.2 pounds. If the total weight of the books and the bookcase is 31.8 pounds, how many books are in the bookcase?**

A 10
B 12
C 24
D 25

74 **In the table below, f is a linear function.**

x	$f(x)$
1	5
5	17
8	?

When $x=8$, what is the value of $f(x)$?

A 19
B 20
C 22
D 26

75 **Which of the following is equivalent to ns^3+n^2s?**

A $ns(s^2+1)$

B $ns(s^2+n)$

C $ns(s^2+s)$

D $ns^2(s+n)$

76 **The ratio of boys to girls in the junior class is 2 to 3. If there is a total of 90 students in the junior class, how many of them are girls?**

A 18
B 36
C 54
D 60

77 **Which list of ordered pairs is NOT a function?**

A { (1, 1), (2, 3), (3, 4), (4, 5) }

B { (1, 1), (2, 2), (3, 3), (4, 4) }

C { (1, 1), (3, 1), (4, 2), (5, 3) }

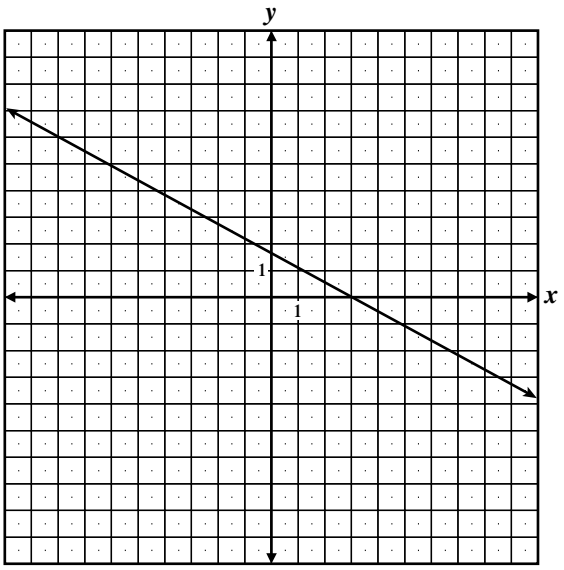
D { (1, 1), (1, 3), (2, 3), (3, 4) }

78 **Which of the following is equivalent to** $\frac{\sqrt{27}}{\sqrt{3}}$**?**

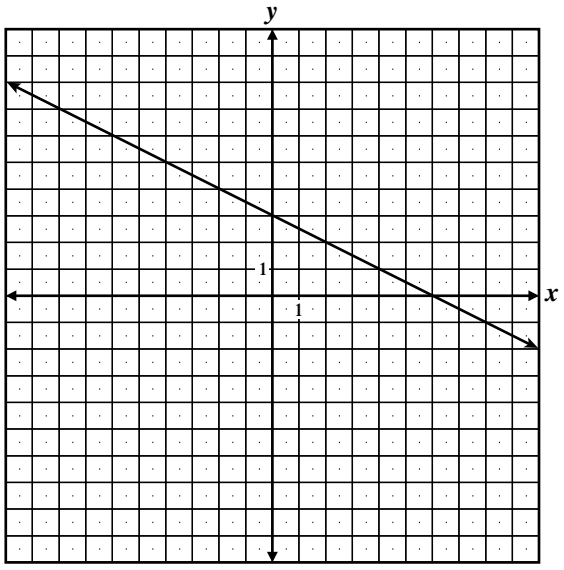
A 3
B $3\sqrt{2}$
C $3\sqrt{3}$
D 9

79 **Which graph has a slope of -2 and y-intercept of 3?**

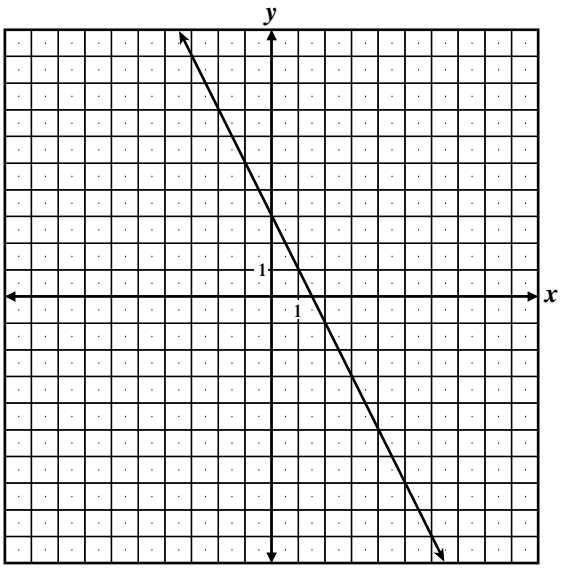
A



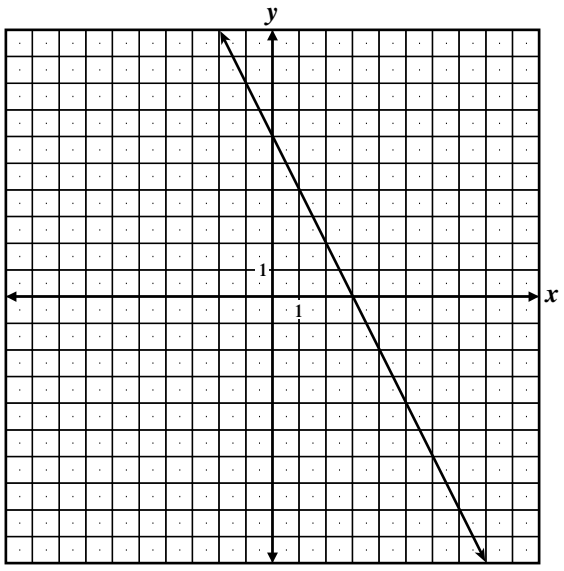
C



B



D



80 **Which line is parallel to the line $y = 2x + 1$?**

A $y = -2x + 1$

B $y = -\frac{x}{2} + 2$

C $y = 2x + 3$

D $y = \frac{x}{2} + 4$

81 **If $y \neq 0$, then $\frac{3x + 12y}{6y} =$**

A $\frac{x}{2y} + 2$

B $\frac{x}{2y} + \frac{2}{3}$

C $\frac{2y}{x} + \frac{1}{2}$

D $\frac{5}{2}$

82 **If $2\sqrt{x} = 14$, what does x equal?**

A $\sqrt{7}$
B 7
C 14
D 49

83 **In the following equations, the value of x represents the price per pound of gravel and the value of y represents the price per pound of sand.**

$$2y = 3x + 8$$
$$5y - 15x = -30$$

At what price for sand do the two lines intersect?

A \$6.67
B \$10.00
C \$12.33
D \$14.00

84 **What is the degree of the polynomial $4x^5 - 2x^3 + 6$?**

A 3
B 4
C 5
D 6

85 **What number equals $8\sqrt{7} + 4\sqrt{7} - 3\sqrt{7}$?**

A $9\sqrt{7}$
B $15\sqrt{7}$
C $16\sqrt{7}$
D $9\sqrt{21}$

86 **FIELD TEST ITEM**

87 **FIELD TEST ITEM**

88 **FIELD TEST ITEM**

89 **FIELD TEST ITEM**

90 **FIELD TEST ITEM**

STOP