

Below are the formulas you may find useful as you work the problems. However, some of the formulas may not be used. You may refer to this page as you take the test.

Linear Formulas

Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Linear Equations

Slope-intercept Form: $y = mx + b$

Point-slope Form: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$

Arithmetic Sequence Formulas

Recursive: $a_n = a_{n-1} + d$

Explicit: $a_n = a_1 + (n - 1)d$

Exponential Formulas

Exponential Equation

$$y = ab^x$$

Geometric Sequence Formulas

Recursive: $a_n = r(a_{n-1})$

Explicit: $a_n = a_1 \cdot r^{n-1}$

Compound Interest Formula

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

Quadratic Formulas

Quadratic Equations

Standard Form: $y = ax^2 + bx + c$

Vertex Form: $y = a(x - h)^2 + k$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Average Rate of Change

The change in the y -value divided by the change in the x -value for two distinct points on a graph.

Statistics Formulas

Mean

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$$

Interquartile Range

$$IR = Q_3 - Q_1$$

The difference between the first quartile and third quartile of a set of data.

Mean Absolute Deviation

$$\frac{\sum_{i=1}^n |x_i - \bar{x}|}{n}$$

The sum of the distances between each data value and the mean, divided by the number of data values.

Directions

Read each question and choose the best answer. For this test you may assume that the value of the denominator is not zero.

SAMPLE

If $f(x) = x^2 + 2x + 3$, what is the value of $f(x)$ when $x = 6$?

- A 27
- B 42
- C 51
- D 60

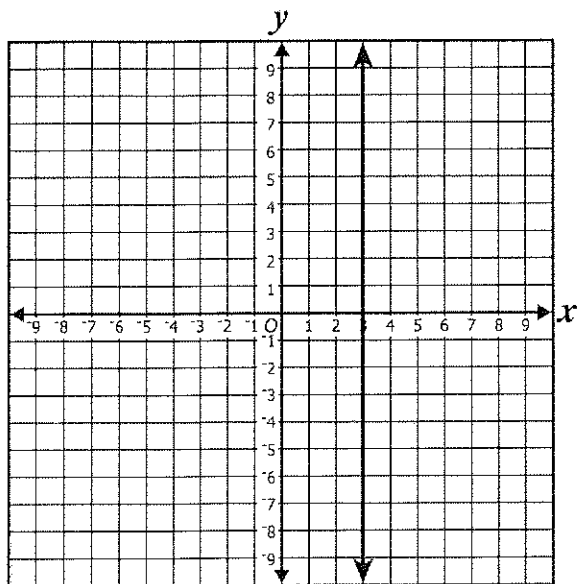
1 What value of x will make the equation $3(x + 15) - 6x = -6(x - 3)$ true?

- A** -9
- B** -6
- C** 2
- D** 3

2 Which describes the graph of $g(x) = -3x + 5$?

- F** A line with a slope of -3 and a y -intercept of -5 .
- G** A line with a slope of -3 and a y -intercept of 5 .
- H** A line with a slope of 3 and a y -intercept of -5 .
- J** A line with a slope of 3 and a y -intercept of 5 .

3 What is *most* likely the slope of the line graphed on the coordinate plane?



- A -3
- B 0
- C 3
- D Undefined

4 Which ordered pair represents the solution to the system of equations?

$$\begin{cases} 2x - 7y = 0 \\ x - 6y = -5 \end{cases}$$

F (7, 2)

G (2, 7)

H (1, 1)

J (-11, -1)

5 What is the solution to the following inequality?

$$3(x - 3) \leq 3$$

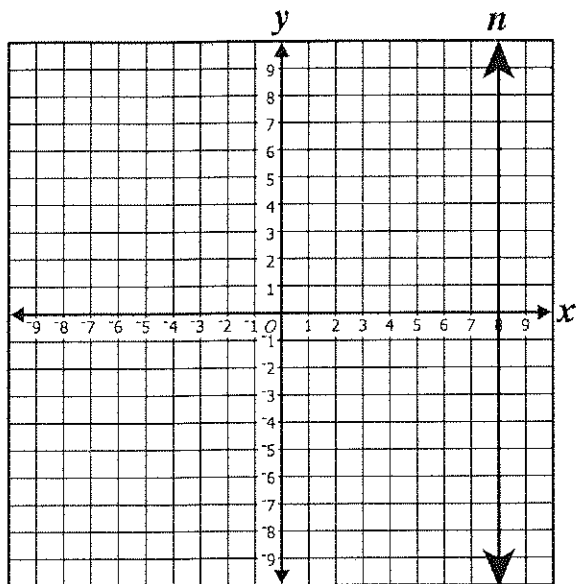
A $x \leq 2$

B $x \geq 2$

C $x \leq 4$

D $x \geq 4$

6 Which equation *best* models line n ?



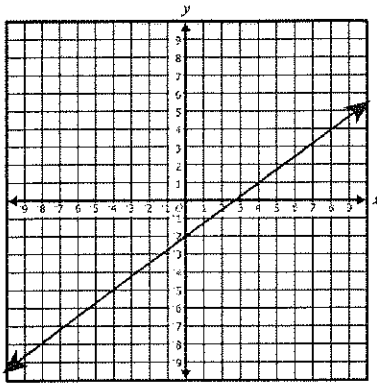
- F $x = 8$
- G $y = 8$
- H $x = 8y$
- J $y = x + 8$

7 Which quadratic equation has solutions of 5 and 7 ?

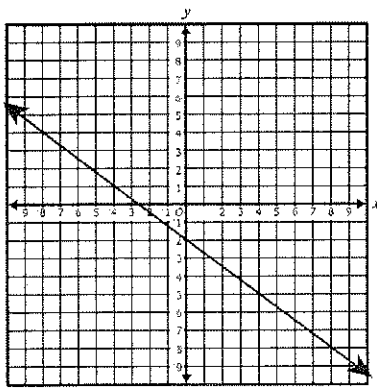
- A $x^2 - 5x = 0$
- B $x^2 - 2x - 35 = 0$
- C $x^2 - 3x - 28 = 0$
- D $x^2 - 12x + 35 = 0$

8 Which graph *best* represents the equation $y = \frac{3}{4}x - 2$?

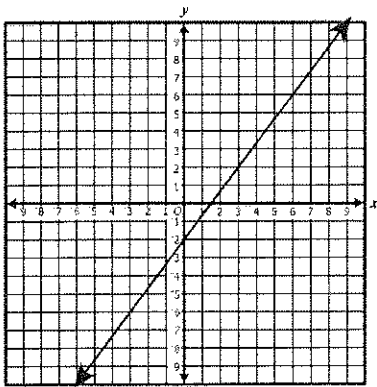
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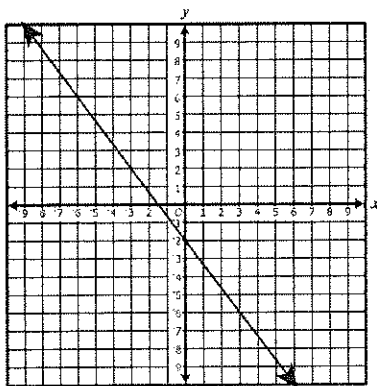
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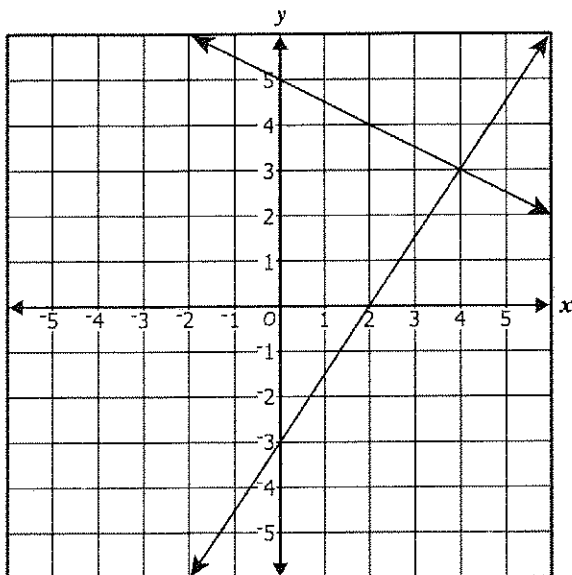
H



J



9 This is the graph of a system of linear equations.



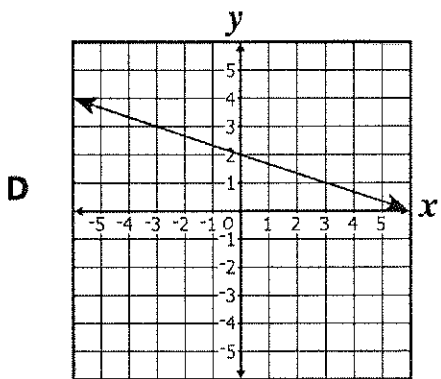
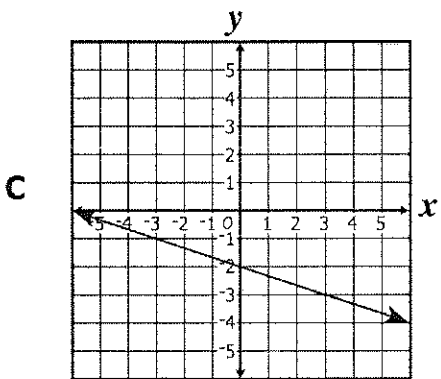
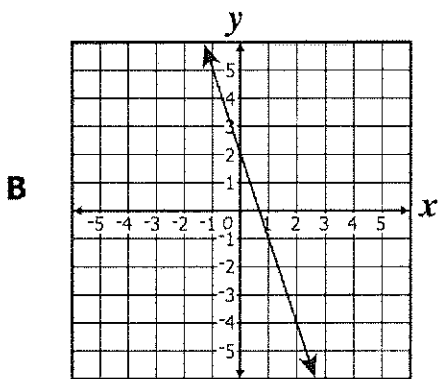
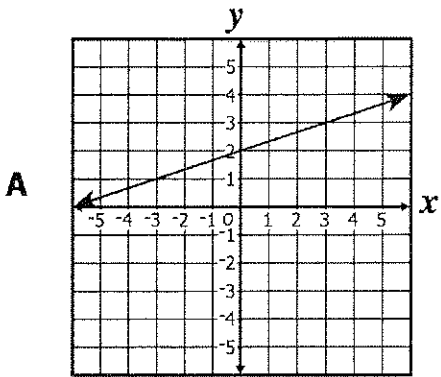
Based upon the graph, which is the apparent solution to the system of equations?

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

10 Which is an example of the distributive property?

- F $10 + 5x = 5x + 10$
- G $5(x + 2) = 5x + 10$
- H $5x + 10 = 5x + 10$
- J $(5 + 10)x = x(5 + 10)$

11 Which graph best represents the equation of the line $y = -\frac{1}{3}x + 2$?



- 12 A school play cost \$1,200 to produce. If tickets sold for \$5 each, the profit, p , made on the play by selling x tickets is given by the equation shown.

$$p = 5x - 1,200$$

What is the slope of the line representing this equation?

- F -1,200
- G -240
- H 1
- J 5

- 13 Which of the following is a solution to $2x^2 + 2x - 12 = 0$?

- A -12
- B -3
- C -2
- D 0

- 14 Which is an equation for the line that contains (1, 2) and has a slope of 4 ?

- F $y = 2x - 4$
- G $y = -2x + 4$
- H $y = 4x - 2$
- J $y = -4x + 2$

15 Which inequality is equivalent to $4x - 2y \leq 8$?

- A $y \leq 2x - 4$
- B $y \geq 2x - 4$
- C $y \leq -2x - 4$
- D $y \geq -2x - 4$

16 What is the slope of the line that passes through $(-2, 5)$ and $(3, 9)$?

- F $\frac{-5}{4}$
- G $\frac{-4}{5}$
- H $\frac{4}{5}$
- J $\frac{5}{4}$

17 In addition to an \$80 bonus, Joan earned \$8 per hour working last week. Joan's total earnings last week were \$240. How many total hours did she work last week?

- A 10
- B 20
- C 30
- D 40

18 Tommie paid \$17.50 to buy 6 youth tickets and 1 adult ticket to a school carnival. Susan paid \$22.50 to buy 3 youth tickets and 3 adult tickets at the carnival. What was the price of an adult ticket?

- F \$2.00
- G \$2.90
- H \$5.50
- J \$7.50

19 What is the value of $\frac{6x-3y}{xy}$ when $x = 6$ and $y = -4$?

- A -2
- B -1
- C 2
- D 3

20 Which equals $(2.3 \times 10^3)(3.6 \times 10^3)$?

- F 8.28×10^9
- G 8.28×10^6
- H 5.90×10^9
- J 5.90×10^6

21 Which expression is equivalent to

$$(4x^2 - 3x + 9) + (7x^2 - 11) + (-x^2 + 7x - 2) ?$$

- A $10x^2 + 4x - 4$
- B $10x^2 - 10x - 22$
- C $10x^6 + 4x^2 - 4$
- D $11x^2 + 4x + 4$

22 In simplest radical form, $\sqrt{845}$ is equal to —

- F 13
- G $13\sqrt{2}$
- H $13\sqrt{3}$
- J $13\sqrt{5}$

23 Which polynomial is equivalent to $\frac{8x^3 + 12x}{2x}$ when $x \neq 0$?

- A $4x^2 + 6$
- B $4x^2 + 6x$
- C $4x^2 + 12x$
- D $4x^4 + 6x^2$

24 What is the complete factorization of $x^2 - 5x - 14$?

- F $(x - 2)(x + 7)$
- G $(x + 2)(x - 7)$
- H $(x - 1)(x + 14)$
- J $(x + 1)(x - 14)$

25 Which statement could be represented by the expression $n^2 + 4n$?

- A The square of a number increased by four
- B The square of the product of a number and four
- C The sum of two times a number and four times a number
- D The square of a number increased by four times the number

Answer Key-EOC020-M0110

Test Sequence Number	Correct Answer	Reporting Category	Reporting Category Description
1	A	003	Equations and Inequalities
2	G	003	Equations and Inequalities
3	D	003	Equations and Inequalities
4	F	003	Equations and Inequalities
5	C	003	Equations and Inequalities
6	F	003	Equations and Inequalities
7	D	003	Equations and Inequalities
8	F	003	Equations and Inequalities
9	C	003	Equations and Inequalities
10	G	003	Equations and Inequalities
11	D	003	Equations and Inequalities
12	J	003	Equations and Inequalities
13	B	003	Equations and Inequalities
14	H	003	Equations and Inequalities
15	B	003	Equations and Inequalities
16	H	003	Equations and Inequalities
17	B	003	Equations and Inequalities
18	H	003	Equations and Inequalities
19	A	001	Expressions and Operations
20	G	001	Expressions and Operations
21	A	001	Expressions and Operations
22	J	001	Expressions and Operations
23	A	001	Expressions and Operations
24	G	001	Expressions and Operations
25	D	001	Expressions and Operations
26	J	001	Expressions and Operations
27	B	001	Expressions and Operations
28	H	001	Expressions and Operations
29	C	001	Expressions and Operations
30	G	001	Expressions and Operations
31	C	002	Relations and Functions
32	G	002	Relations and Functions
33	A	002	Relations and Functions
34	G	002	Relations and Functions
35	C	002	Relations and Functions
36	H	002	Relations and Functions
37	B	002	Relations and Functions
38	J	002	Relations and Functions
39	B	002	Relations and Functions
40	J	002	Relations and Functions
41	C	002	Relations and Functions
42	F	002	Relations and Functions
43	C	004	Statistics
44	J	004	Statistics
45	D	004	Statistics
46	J	004	Statistics
47	B	004	Statistics
48	H	004	Statistics
49	A	004	Statistics
50	J	004	Statistics