

# Algebra 2 Practice Final Fall Semester

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

1. What is the complete factorization of  $2x^2 + x - 15$ ?

(A)  $(x - 5)(2x + 3)$

(C)  $(x - 3)(2x + 5)$

(B)  $(x + 3)(2x - 5)$

(D)  $(x + 5)(2x - 3)$

2. What is the complete factorization of  $-x^2 + 3x + 28$ ?

(F)  $(x - 4)(x - 7)$

(H)  $-(x + 4)(x + 7)$

(G)  $-(x - 4)(x + 7)$

(I)  $-(x - 7)(x + 4)$

3.

The function  $f(x) = -3(x - 5)^2 + 9$  has a maximum value of

A. 66

B. -66

C. 9

D. -9

4.

Which of the following functions has a vertex of  $(3, 2)$  and a line of symmetry of  $x = 3$ ?

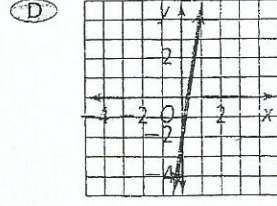
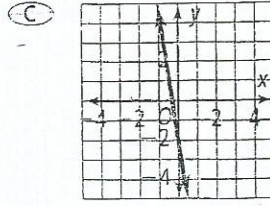
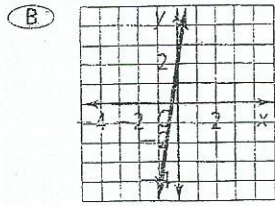
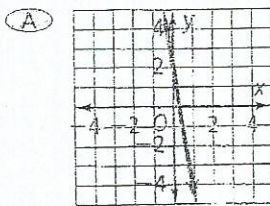
A.  $f(x) = (x - 3)^2 + 2$

B.  $f(x) = (x - 2)^2 + 3$

C.  $f(x) = (x + 2)^2 - 3$

D.  $f(x) = (x + 3)^2 - 2$

5. Which of the following is a graph of  $4x = -\frac{1}{2}y - 1$ ?



6.

The distance between  $(3, -7)$  and  $(2, -5)$  is

A.  $\sqrt{5}$

B.  $\sqrt{149}$

C.  $\sqrt{170}$

D.  $\sqrt{3}$

7.

The 10th term of the geometric sequence  $64, -32, 16, 8, \dots$  is

A.  $\frac{1}{10}$

B.  $-\frac{1}{8}$

C.  $\frac{1}{8}$

D.  $-\frac{1}{32}$

8.

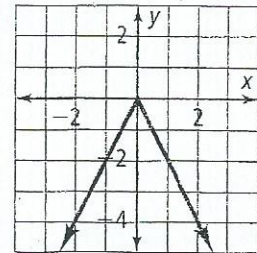
Which equation has the graph shown at the right?

(A)  $y = -\frac{1}{2}|x|$

(C)  $y = \frac{1}{2}|x|$

(B)  $y = 2|x|$

(D)  $y = -2|x|$



9.

Which statement about the graph of the function  $y = -\frac{1}{3}|x + 2| - 5$  is true?

(F) the vertex is at  $(2, -5)$

(H) the vertex is at  $(-2, 5)$

(G) the vertex is at  $(2, 5)$

(I) the vertex is at  $(-2, -5)$

table?

x	y
6	4
12	8
21	14
30	20

- F  $x = \frac{2}{3}y - 2$      G  $x = \frac{2}{3}y + 2$      H  $y = \frac{2}{3}x$      I  $y = \frac{3}{2}x$

11. The graph of  $y = f(x)$  is reflected in the  $x$ -axis and translated 3 units right. Which is the equation of the new graph?

- A  $y = -f(x + 3)$      B  $y = f(-x + 3)$      C  $y = -f(x - 3)$      D  $y = f(-x - 3)$

12. Which equation represents the vertical translation of  $y = f(x)$  up 5 units?

- F  $y = f(x) - 5$      G  $y = f(x - 5)$      H  $y = f(x) + 5$      I  $y = f(x + 5)$

13. What is the domain of the relation given by the ordered pairs?

$(2, -1), (-4, 1), (-2, -1), (3, -3), (2, 3)$

- F  $\{-3, -2, 1, 3\}$      G  $\{-4, -2, 2, 3\}$      H  $\{-3, -1, 1, 3\}$      I  $\{-4, -1, 1, 3\}$

14. What is the slope-intercept form of  $3x + 2y = 1$ ?

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

15. What is true about the line that passes through the points  $(3, -7)$  and  $(3, 2)$ ?

- F It is horizontal.     H It is vertical.  
 G It rises from left to right.     I It falls from left to right.

16. What are the zeros of the polynomial function  $y = (2x + 1)(x - 1)$ ?

- A  $\frac{1}{2}, 1$      B  $-1, 1$      C  $-\frac{1}{2}, 1$      D  $\frac{1}{2}, -1$

17. What is the  $y$ -intercept of the graph of  $5x - 9y = 45$ ?

- F  $-9$      G  $9$      H  $-5$      I  $5$

18. Which of the following is the equation of a line that contains the point  $(4, -3)$

and has a slope of  $-\frac{2}{3}$ ?

- (A)  $y = -\frac{3}{4}x - \frac{2}{3}$     (D)  $y = -\frac{2}{3}x - \frac{1}{3}$   
(B)  $y = -\frac{2}{3}x + \frac{2}{3}$     (E)  $y = -\frac{2}{3}x - \frac{17}{3}$   
(C)  $y = -\frac{3}{2}x - \frac{4}{3}$

19. At a bookstore, used hardcover books sell for \$8 each and used softcover books sell for \$2 each. You purchase 36 used books and spend \$144. How many softcover books do you buy?

- (F) 9                      (G) 12                      (H) 18                      (I) 24

20. Which polynomial function has an end behavior of up and down?

- (F)  $-6x^7 + 4x^2 - 3$                       (H)  $6x^7 - 4x^2 + 3$   
 (G)  $-7x^6 + 3x - 2$                       (I)  $7x^6 - 3x + 2$

21. What is the solution of  $x^2 - 5x = 5$ ? Use the Quadratic Formula.

- (A) -5, 1                      (B) -1, 5                      (C)  $\frac{5 \pm \sqrt{5}}{2}$                       (D)  $\frac{5 \pm 3\sqrt{5}}{2}$

22. What are the solutions of the equation  $x^2 = 8x - 1$ ?

- (A)  $-4 \pm \sqrt{17}$                       (B)  $-4 \pm \sqrt{15}$                       (C)  $4 \pm \sqrt{15}$                       (D)  $4 \pm \sqrt{17}$

23.  $(x + 2)(x - 3) = 0$ . Then  $x =$  ?

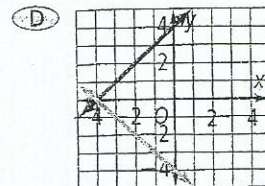
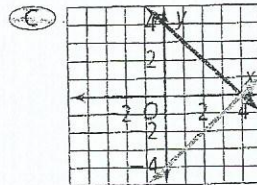
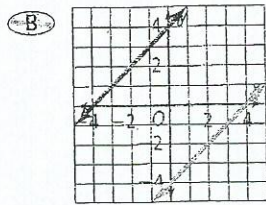
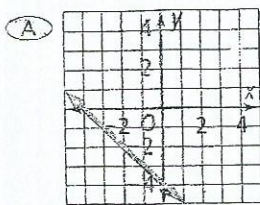
- (A) -2 or 3  
 (B) 2 or -3  
 (C)  $x^2 - x - 6$   
 (D) 0  
 (E) -6

24. Which ordered pair of numbers is the solution of the system?  $\begin{cases} 2x + 3y = 12 \\ 2x - y = 4 \end{cases}$

- (F) (2, 3)                      (G) (3, 2)                      (H) (1, -2)                      (I) (-3, 6)

25. Which of the following graphs shows the solution of the system?

$$\begin{cases} x + y = -4 \\ 2x - 2y = -8 \end{cases}$$



26. What is the vertex of the function  $y = 3(x - 7)^2 + 4$ ?

- (A) (-7, -4)                      (B) (-7, 4)                      (C) (7, -4)                      (D) (7, 4)

1. B	2. I	3. C	4. A	5. C
6. A	7. B	8. D	9. I	10. H
11. C	12. H	13. G	14. B	15. H
16. C	17. H	18. D	19. I	21 D
22. C	23. A	24. G	25. D	26. D
Solutions to	Algebra 2	Practice Final	Semester 1	Fall 2014