

# Chapter 8 Preparing for the ADP<sup>SM</sup> Algebra II Exam



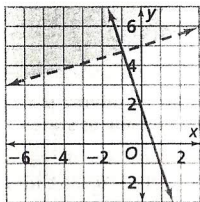
**DIRECTIONS FOR QUESTIONS 1–12:** For each of the questions below, select the best answer choice.

- 1 Which set of points are all included in the solution for the system below?

$$\begin{cases} 2x - 3y \leq 9 \\ y < -\frac{1}{2}x + 3 \end{cases}$$

- A. (0, -1), (0, 0), (0, 2)  
 B. (-1, 0), (1, 0), (3, -4)  
 C. (0, 6), (4, -2), (5, 1)  
 D. (6, 0), (1, 5), (-2, 4)

- 2 Which system of inequalities is shown on the graph?



- A.  $\begin{cases} 3x + y \geq 2 \\ 3y < x + 15 \end{cases}$   
 B.  $\begin{cases} 3x + y \geq 2 \\ 3y > x + 15 \end{cases}$   
 C.  $\begin{cases} 3x + y \leq 2 \\ 3y < x + 15 \end{cases}$   
 D.  $\begin{cases} 3x + y \leq 2 \\ 3y > x + 15 \end{cases}$

- 3 What is the solution to the system of equations?

$$\begin{cases} y = x^2 \\ x + y = 2 \end{cases}$$

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

- 4 Which is true for the following system of equations?

$$\begin{cases} 4x + 2y + 2z = 14 \\ 6x - y - z = 1 \\ 2x - 3y + z = -1 \end{cases}$$

- A. (1, 2, 3) is the only solution.  
 B. (2, 3, 0) is the only solution.  
 C. There is no solution.  
 D. There are an infinite number of solutions.

- 5 Consider the equation  $-3y^2 + 5x + 6 = 0$ . Solve the equation for  $y$ .

- A.  $y = \sqrt{\frac{5}{3}x} + 2$     B.  $y = \pm \sqrt{\frac{5}{3}x} + 2$   
 C.  $y = \sqrt{\frac{5}{3}x} - 2$     D.  $y = \pm \sqrt{\frac{5}{3}x} - 2$

- 6 Given the following constraints, at which point does the maximum for the objective function  $P = 6x - 6y$  occur?

$$\begin{cases} x \geq 0 \\ y \geq 1 \\ x \leq 3 \\ x + y \leq 5 \end{cases}$$

- A. (0, 1)    B. (0, 5)  
 C. (3, 1)    D. (3, 2)

- 7 Which is true of the equations?

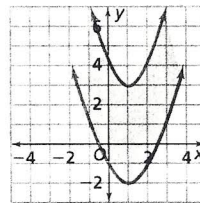
$$\begin{cases} 3x - 2y + z = -4 \\ 6x - 4y + 2z = -1 \\ 3x + 2y - z = 6 \end{cases}$$

- A. The system is inconsistent.  
 B. The solution is (0, -5, 2).  
 C. There are an infinite number of solutions.  
 D. The system is consistent and dependent.

- 8 An objective function is represented by  $P = 12x + 9y$ . The feasible region has vertices at (0, 10), (5, 8), and (10, 0). What is the maximum for the function?

- A. 90    B. 120  
 C. 132    D. 342

- 9 Which system of inequalities is shown on the graph?



- A.  $\begin{cases} y \leq (x-1)^2 - 2 \\ y \leq (x-1)^2 + 3 \end{cases}$   
 B.  $\begin{cases} y \geq (x-1)^2 - 2 \\ y \leq (x-1)^2 + 3 \end{cases}$   
 C.  $\begin{cases} y \geq (x-1)^2 - 2 \\ y \geq (x-1)^2 + 3 \end{cases}$   
 D.  $\begin{cases} y \leq (x-1)^2 - 2 \\ y \geq (x-1)^2 + 3 \end{cases}$

- 10 Solve for  $x$  in the equation  $-r(2 + 4x) = 2r^2$ .

- A.  $x = \frac{-r-1}{2}$     B.  $x = r - \frac{1}{2}$   
 C.  $x = \frac{r}{2}$     D.  $x = -\frac{r}{2} + 1$

- 11 An electrician charges a \$50 service charge, plus \$40 per hour for labor. A plumber charges a \$30 service charge, plus \$45 per hour for labor. If the electrician and the plumber billed the same amount during a service call, how many hours of labor did each one bill?

- A. 4 hours    B. 5 hours  
 C. 210 hours    D. 250 hours

- 12 Which graph represents the system of inequalities?

$$\begin{cases} -x + y < 4 \\ -x + 2y \geq -3 \\ y > -x \end{cases}$$

