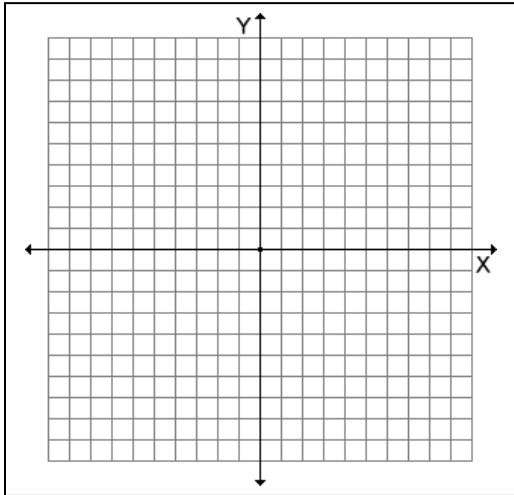


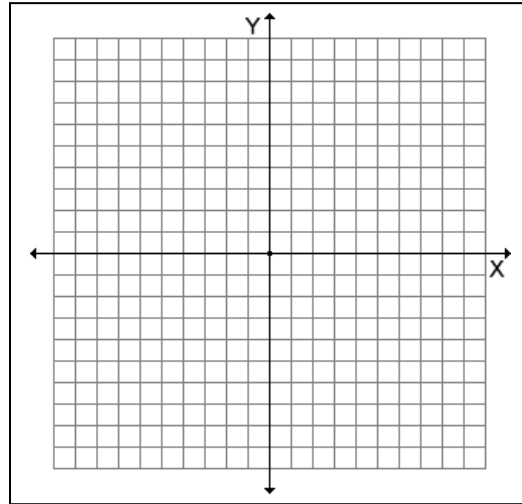
## Practice Test Unit 1: Solving Systems

Solve each system of equations by **graphing**.

$$\begin{aligned} 1. \quad &4x + 2y = -6 \\ &2x + y = 8 \end{aligned}$$



$$\begin{aligned} 2. \quad &2x + y = -1 \\ &-3x - y = 3 \end{aligned}$$



For # 3 &amp; 4: Classify the system above as independent/dependent, consistent/inconsistent.

3. \_\_\_\_\_  
\_\_\_\_\_4. \_\_\_\_\_  
\_\_\_\_\_Solve each system of equations by using **substitution**.

Classify the system as independent/dependent, consistent/inconsistent.

$$\begin{aligned} 5. \quad &5x - 2y = 8 \\ &x - y = 1 \end{aligned}$$

5. \_\_\_\_\_

Type: \_\_\_\_\_

$$\begin{aligned} 6. \quad &4x - 3y = 14 \\ &y = -3x + 4 \end{aligned}$$

6. \_\_\_\_\_

Type: \_\_\_\_\_

Solve each system of equations by using **elimination.**

Classify the system as independent/dependent, consistent/inconsistent.

7.  $2x + 3y = 5$   
 $3x - 2y = 1$

7. \_\_\_\_\_

Type: \_\_\_\_\_

8.  $-6x - 3y = 12$   
 $8x + 2y = 16$

8. \_\_\_\_\_

Type: \_\_\_\_\_

Solve each system of inequalities by **graphing.**

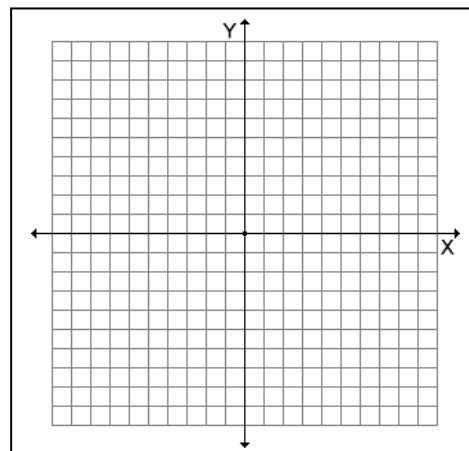
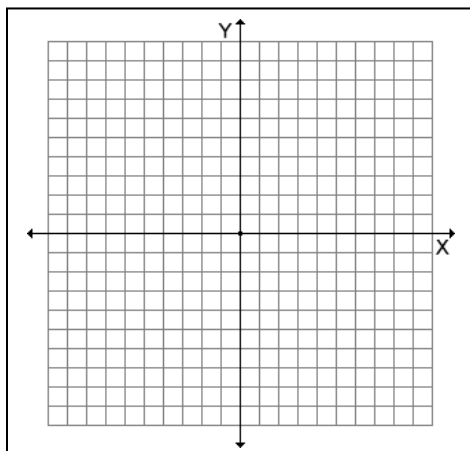
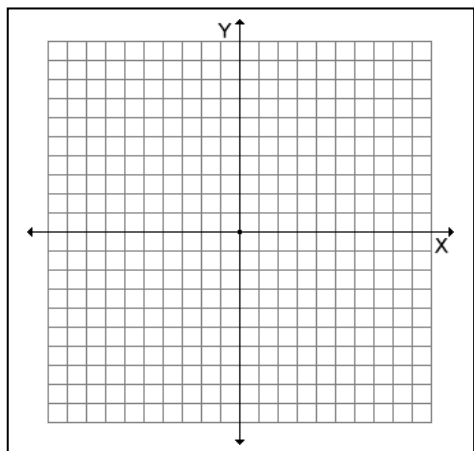
9.  $y > -1$   
 $y \geq -2x + 1$

10.

$x - y \leq 4$   
 $2x + y < 4$

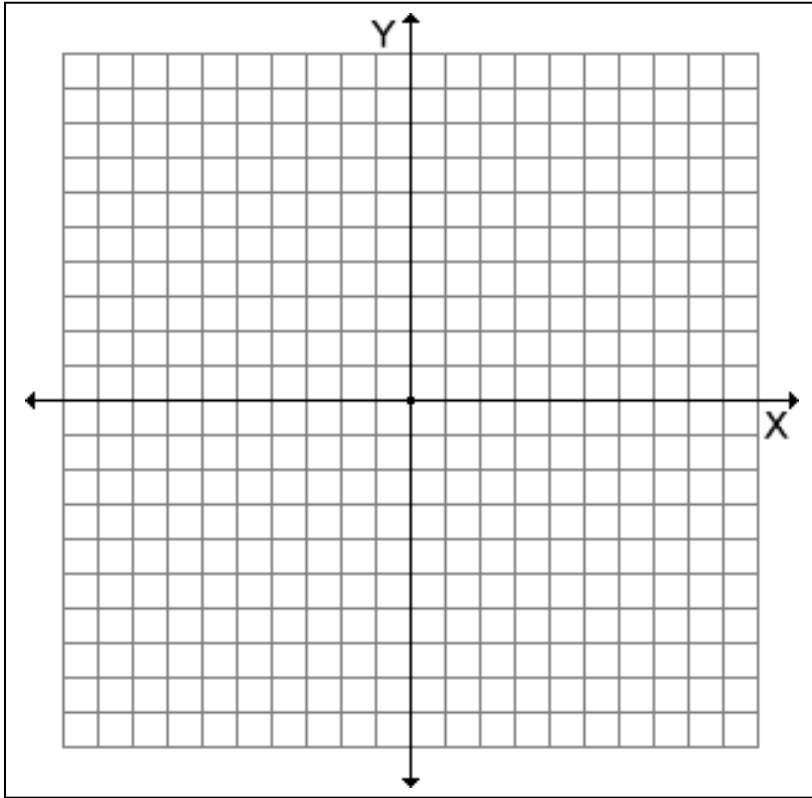
11.

$2x + y > -5$   
 $3x - 2y \geq 9$



Use the system of inequalities:  $x \leq 6$ ,  $-4x + 3y \leq 3$ ,  $x + 3 \leq 3y$

12. Find the coordinates of the vertices of the feasible region.



12. Vertices: \_\_\_\_\_

13. Find the maximum value of  $f(x, y) = 3x + y$  for the feasible region.

14. Find the minimum value of  $f(x, y) = 3x + y$  for the feasible region.


13. Maximum: \_\_\_\_\_ at (     ,     )    14. Minimum: \_\_\_\_\_ at (     ,     )

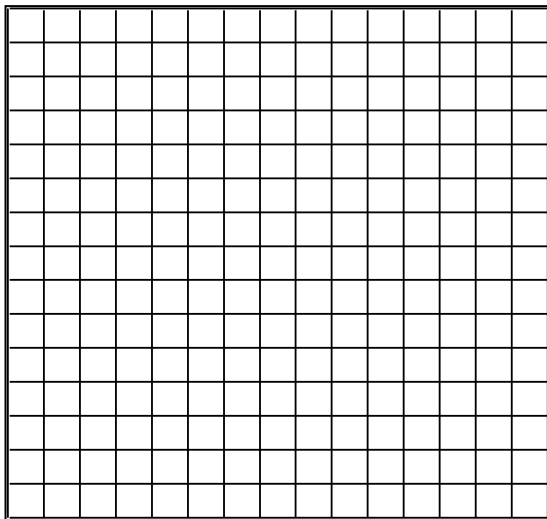
**For Questions 15- 17, use the following information.** A college arena is selling tickets to students and to the general public. The arena seats 11,000 people. The college reserves at least 7000 tickets for students. Student tickets are \$8 each and the general public tickets are \$32 each.

(a) Make a table to organize the information.

	x	y	how much?

15. Write the system of inequalities: \_\_\_\_\_  
 \_\_\_\_\_

(b) Graph the feasible region below (be sure to **label your scales**).



(c). Write the profit equation: \_\_\_\_\_

(d). List the vertices: \_\_\_\_\_  
 \_\_\_\_\_


16. How many general public tickets should the college sell to maximize revenue (amount collected)?

\_\_\_\_\_

17. What is the maximum revenue? \_\_\_\_\_

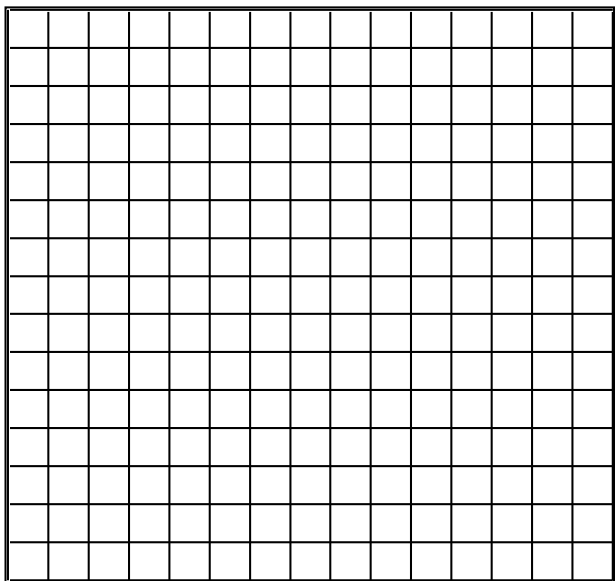
18. A sports manufacturer makes baseball bats and tennis rackets. It cost \$25 to produce each baseball bat and it takes 15 hours to make it. It costs \$60 to produce each tennis racket and it takes 6 hours to make it. The store has at most \$3000 to spend and at most 600 hours to make them. It makes \$45 profit on each baseball bat and \$75 profit on each tennis racket. Find the number of each that the manufacturer should produce to maximize profits.

(a) Make a table to organize the information.

	x	y	how much?

Write the system of inequalities: \_\_\_\_\_  
 \_\_\_\_\_

(b) Graph the feasible region below (be sure to **label your scales**).



(c) Write the profit equation: \_\_\_\_\_

(d) List the vertices: \_\_\_\_\_

\_\_\_\_\_


Maximum profit of \$ \_\_\_\_\_

Selling: \_\_\_\_\_ bats and \_\_\_\_\_ tennis rackets