**2.4 - Solving Systems of Equations Graphically ⸱ Form A**

**Example 1**

**Determine the number of solutions for each system. Then state whether the system of equations is *consistent* or *inconsistent* and whether it is *independent* or *dependent.***

 **1.** *y* = *x* ‒ 5 **2.** 3*x* + *y* = –2 **3.** 3*x* – *y* = 2

–2*x* + 2*y* = –10 6*x* + 2*y* = 10 *x* + *y* = 6   

 **Examples 2 and 3**

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

 **4.** –4*x* + 6*y* = –2 **5.** *y* – *x* = 3 **6.** 5*x* – *y* = 4

 2*x* – 3*y* = 1 *y* = 1 –2*x* + 6*y* = 4 

**Example 4**

**Solve each problem.**

**7. USE ESTIMATION** Two moving truck companies offer the same vehicle at different rates. At Haul-n-Save, the truck can be rented for $30, plus $0.79 per mile. At Rent It Trucks, the truck can be rented for $75, plus $0.55 per mile.

**a.** Write equations for the total cost of renting a truck from each company.

**b.** Graph the equations on the same coordinate plane. Examine the graph to estimate after how many miles of driving the total rental cost will be the same from each company.

**c.** Check your estimate. How reasonable is your estimation? Justify your reasoning.

**Example 5 and 6**

**USE TOOLS Use a graphing calculator to solve each system of equations. Round the coordinates to the nearest hundredth, if necessary.**

 **8.** ‒3.8*x* + 2.9*y* = 19

6.6*x* ‒ 5.4*y* = ‒23

**~~Example 6~~**

**~~USE TOOLS Use a graphing calculator to solve each system of equations. Round the coordinates to the nearest hundredth, if necessary.~~**

 **~~9.~~** ~~‒4.7~~*~~x~~* ~~+ 16 = 16.79~~*~~x~~* ~~‒ 80.2~~ **~~10.~~** ~~471 ‒ 63~~*~~x~~* ~~= ‒50.5~~*~~x~~* ~~+ 509~~

 **Mixed Exercises**

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

**11.** *x* ‒ 3*y* = 6  **12.** 4*x* + *y* = ‒2

2*x* ‒ *y* = ‒32*x* + $\frac{y}{2}$ = ‒1



**13. REASONING** A high school band was selling ride tickets for the school fair. On the first day, 250 children’s tickets and 150 adult tickets were sold for a total of $550. On the second day, 180 children’s tickets and 120 adult tickets were sold for a total of $420. What is the price for each child ticket and each adult ticket?

 **a.** Write a system of equations to represent this situation.

 **b.** Graph the system of equations.

 **c.** Find the intersection of the graphs. What does the point of intersection represent?

**14. ANALYZE** If *a* is consistent and dependent with *b*, *b* is inconsistent with *c*, and *c* is consistent and independent with *d*, then *a* will *sometimes*, *always*, or *never* be consistent and independent with *d*. Explain your reasoning.

 **15. ANALYZE** Determine if the following statement is *sometimes*, *always*, or *never* true. Explain your reasoning.

*A system of linear equations in two variables can have exactly two solutions.*