# Sec 2-6 Systems of Equations Applications

Name:

1. The Turbo Taxi Service charges a flat rate of $5 and then $0.40 per mile. The Express Taxi Company charges a flat rate of $2 and then $0.75 per mile.

   a. Write an equation that describes the cost, c, of each taxi cab in terms of miles, m, driven.


   Turbo Taxi Service: c =


   Express Taxi Co: c =

   b. When do the two taxi cabs charge the same amount?

   c. Describe when the Express Taxi Company charges more than Turbo Taxi Services.

2. Theresa was taking her 2 grandchildren to the zoo. Theresa purchased 1 adult ticket for herself and 2 children's tickets for $18.20. A family of 5 were also visiting the zoo. The family purchased 2 adult and 3 children's tickets for $30.90.

   a. Write an equation that describes each purchase:

   Theresa:

   Family:

   b. Solve the system to determine how much an adult's ticket costs for the zoo.

3. A sales person that worked at a cell phone store recorded the following information about the number of Android phones and iPhones that he sold for the day:

   - He sold a total of 24 smartphones that were either an iPhone or an Android phone.
   - The iPhones that he sold were all priced at $200 and the all of the Android phones were priced at $150. He sold a total of value of $4150 in smartphones.

   a. Write an equation that describes each piece of information. Let '***P***' represent the number of iPhones and '***A***' represent the number of Android Phones.

      Total Number:

      Total Sales:

   b. Using the system of equations determine the number of each type of phone that was sold.

4. A local school sold 230 tickets for their performance of Hamlet. They sold a combination of regular tickets and student tickets. The regular tickets sold for $8 each and the student tickets sold for $5. That night they collected $1522 in ticket sales.

   a. Write an equation that describes each piece of information. Let '***R***' represent the number of regular tickets and '***S***' represent the number of Student tickets.

   b. Using the system of equations determine the number of each type of ticket that was sold.

5. At the Hardware store, they sell 6 pound bags of grass seed for $15 and they sell 20 pound bags of grass seed for $40. A landscaping company purchased a total of 14 bags of the grass seed mentioned and paid a total of $435. How many of each type of bag did the company purchase?

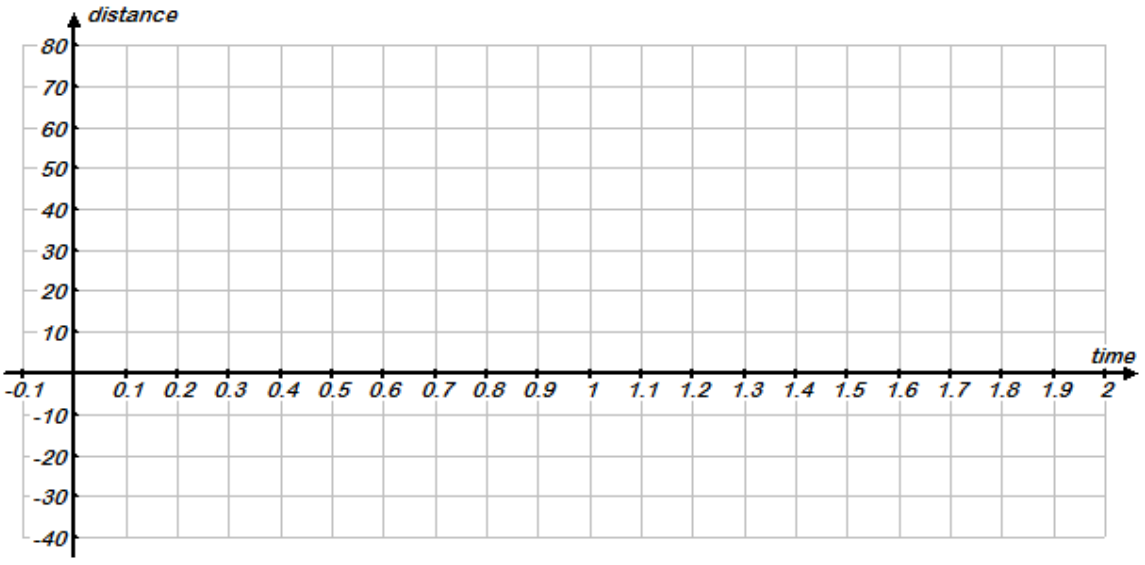

6. Janice left home at 12:00 pm. She drove to the airport at an average speed of 40 miles per hour. The airport is a distance of 70 miles away from her house. Her husband, Mike, realized she forgot to take her bathroom bag for her trip and left the same house at 12:30 pm to go to the airport. He average 60 miles per hour on the trip.

   a. Let 'y' represent the distance each person is away from their house and 'x' represent the number of hours traveled after 12:00pm. Write an equation describing each person's distance away from their house.

      Janice:

      Mike:

   b. Graph the system of equations below:




   c. Will Mike catch up to Janice before she gets to the airport? If so, at what time would he catch up with her?

   d. Approximately what time would each arrive at the airport?

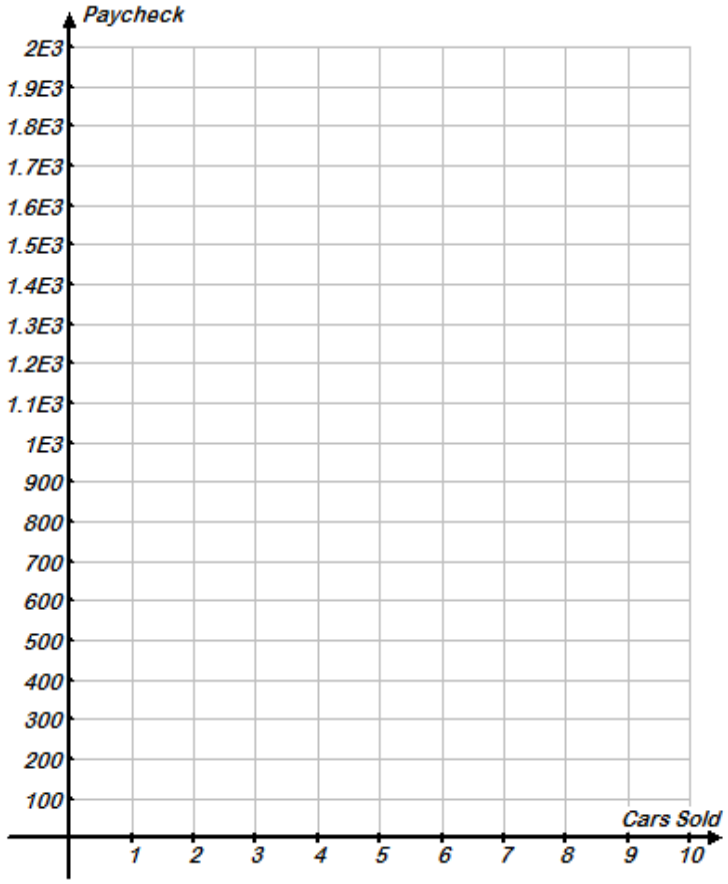
7. CarStax is a used car dealership. At CarStax they pay their salespeople $550 a week plus $150 for each car they sell. Andy's Autos is another used car dealership. At Andy's they pay their salespeople $400 a week plus $180 for each car sold

   a. Let 'y' represent the amount a sales person earns in a week and 'x' represent the number of cars sold each week. Write an equation describing each dealership's salary for a sales person.

      CarStax:

      Andy's Autos:

   b. Graph the system of equations below:




   c. At what point do the two dealerships pay the salesperson the same amount?

   d. Determine when each dealership pays a higher salary.