

Lesson 7.1 ~ Developing Systems of Linear Equations

- 1) The sum of two numbers is 22. Their difference is 2. What are the numbers?

$$x + y = 22 \quad x - y = 2$$

- 2) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 9 vans and 4 buses with 210 students. High School B rented and filled 13 vans and 5 buses with 280 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

$$9v + 4b = 210 \quad 13v + 5b = 280$$

- 3) Pranav and Danielle each improved their yards by planting hostas and ornamental grass. They bought their supplies from the same store. Pranav spent \$120 on 6 hostas and 6 bunches of ornamental grass. Danielle spent \$232 on 12 hostas and 11 bunches of ornamental grass. What is the cost of one hosta and the cost of one bunch of ornamental grass?

$$6h + 6g = 120 \quad 12h + 11g = 232$$

- 4) Traveling downstream a certain boat went 10 mph. Traveling upstream it only went 2 mph. What is the speed of the current? How fast would the boat go if there were no current?

$$b + c = 10 \quad b - c = 2$$

- 5) Flying to Cheyenne with a tailwind a plane averaged 124.4 km/h. On the return trip the plane only averaged 47.6 km/h while flying back into the same wind. What is the speed of the wind? How fast would the plane go if there were no wind?

$$p + w = 124.4 \quad p - w = 47.6$$

- 6) James and Lisa are selling fruit for a school fundraiser. Customers can buy small boxes of tangerines and large boxes of tangerines. James sold 3 small boxes of tangerines and 8 large boxes of tangerines for a total of \$135.14. Lisa sold 6 small boxes of tangerines and 11 large boxes of tangerines for a total of \$196.43. Find the cost each of one small box of tangerines and one large box of tangerines.

$$3s + 8L = 135.14 \quad 6s + 11L = 196.43$$

- 7) The sum of two numbers is 21.8. Their difference is 4.6. Find the numbers.

$$x + y = 21.8 \quad x - y = 4.6$$

- 8) Jennifer's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 14 adult tickets and 13 child tickets for a total of \$163.40. The school took in \$103.60 on the second day by selling 12 adult tickets and 7 child tickets. What is the price each of one adult ticket and one child ticket?

$$14a + 13c = 163.4 \quad 12a + 7c = 103.6$$