Name:______ UNIT 3 Date:_____ LESSON 11

Do Now

For each of the following situations, write an equation in y = mx + b form that models the situation.

- a. Jeremy's pay started at \$500 per week. Every year his pay will increase by \$25 per week. Write an equation that models his weekly pay after *x* years.
- b. Shelly has a gift card for her favorite restaurant for \$15. She wants to treat a group of her friends to sandwiches at the restaurant. Sandwiches cost \$4.50 each. Write an equation that models the total money Shelly owes if she buys x sandwiches after using the gift card.
- c. In 2005, a Caribbean nation produced 0.7 million tons of cane sugar. Annual production was projected to decrease by 0.05 million tons each year for the next five years. Write a linear function that models this situation.

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AIM: REAL WORLD APPLICATIONS INVOLVING SYSTEMS OF EQUATIONS

1. Two health clubs offer different membership plans. The graph below represents the total cost of belonging to Club A and Club B for one year.



- 2. At Ron's Rental, a person can rent a big screen television for \$10 a month plus a onetime "wear-and-tear" fee of \$100. At Josie's Rental, the charge is \$20 a month and an additional charge of \$20 for delivery with no "wear-and-tear" fee.
 - a) If *c* equals the cost, write an equation that represents the cost of the rental for *m* months at Ron's Rental
 - b) If *c* equals the cost, Write an equation that represents the cost of the rental for *m* months at Josie's Rental.
 - c) On the accompanying grid, graph and label each equation.



d) From your graph, determine in which month Josie's cost will equal Ron's cost.

- 3. Two health clubs have the following rates: Sammy's Spa charges a flat fee of \$350 a year for the club, machines, pool, and classes. Shape Up charges \$150 a year for all amenities but classes cost \$20 a class.
 - a) Write the equation that represents the Sammy's Spa fees.
 - b) Write the equation that represents the Shape Up fees.

c) Graph and label both equations



d) When would Shape Up be more economical?