Name: Key Date: 4

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.

$y = 25x + 500$

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.

$y = -4.5x + 15$

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.

$y = .7 - .05x \qquad 0 \leq x \leq 5$

Name:_____ Date:_____ L29

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.

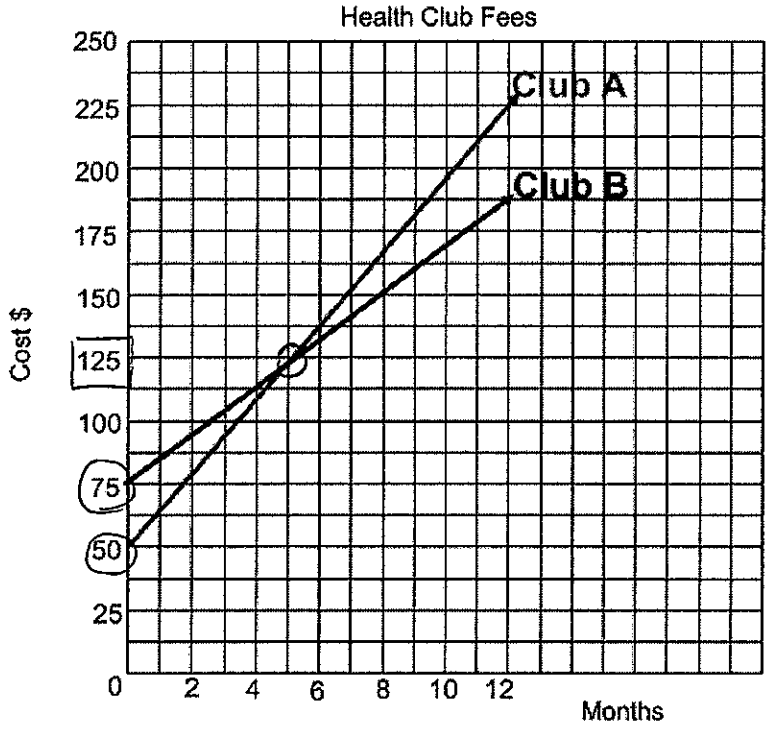
c. In 2005, a Caribbean nation produced 0.7 million tons of cane sugar. Annual production was projected to decrease by 0.05 million tons each year for the next five years. Write a linear function that models this situation.

Name: Key Date:

Unit 3 Lesson 11

L11: 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.



a) What is the number of the month when the total cost is the same for both clubs? What is this cost?

- month 5
- $125

POI
(5, 125)

b) If the yearly cost includes a membership fee plus a monthly charge, what is the membership fee for Club A? Club B?

↓ initial cost

Club A → $50

Club B → $75

$y = mx + b$

c) What is the monthly charge for Club A? Club B?

A
125
−50
75 ÷ 5 = $15 monthly charge

B
125
−75
50 ÷ 5 = $10 monthly charge

d) Write a linear equation that models each Club.

A = $y = 15x + 50$

B = $y = 10x + 75$

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.

$y = mx + b$

$y = 0x + 350$

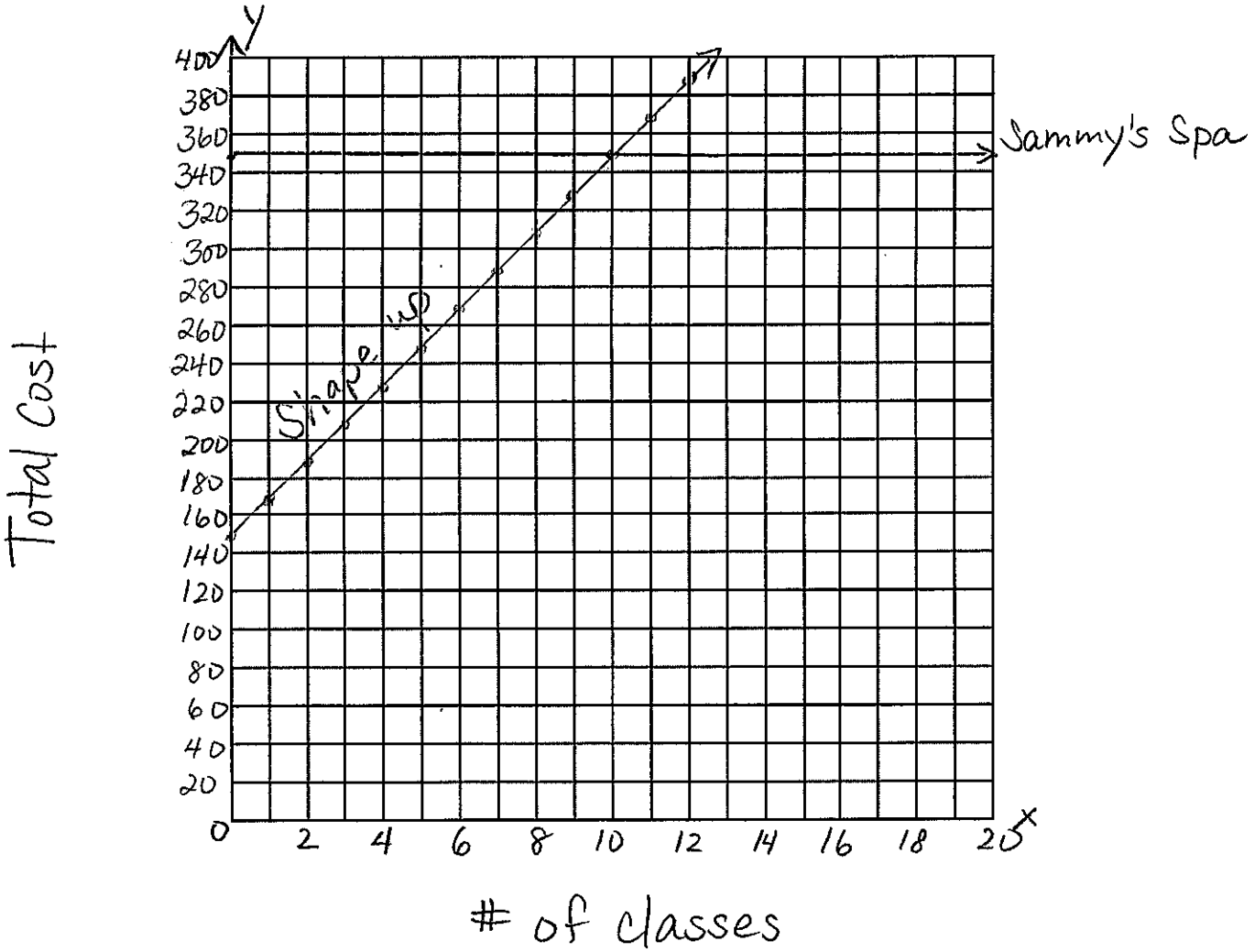
$\boxed{y = 350}$ (Horizontal)

b) Write the equation that represents the Shape Up fees.

$\boxed{y = 20x + 150}$

$m = \frac{20}{1}$ $b = 150$

c) Graph and label both equations



d) When would Shape Up be more economical?

When you attend Less than 10 classes.