



Problem 1 – Music Sales Problem

In recent years, the numbers of CDs sold in the United States has declined while digital music has become the new method for purchasing music.

Page 1.3 shows data of the sales, in millions, of CDs, digital albums (**da**), and individual songs (**is**) for the first three months of the year.

Questions:

- 1) What does the value of **b3** represent?
- 2) Why is it negative?
- 3) How is the result in Column D different from the other two and why?

Use the data on page 1.3 to find the equation for each of the three lines in either slope-intercept form or point-slope form and write them in the space provided.

- CDs $y =$ _____
- Digital Albums $y =$ _____
- Individual Songs $y =$ _____

Record the coordinates of the three intersection points.

- (_____ , _____)
- (_____ , _____)
- (_____ , _____)

Questions:

- 4) When did the sales of digital albums overtake the CDs?
- 5) When does the graph project that the sales of individual songs overtake CDs?
- 6) When does the graph project that the sales of individual songs overtake digital albums?
- 7) As time goes on according to the graph, it indicates the CD sales becoming zero. Do you think this is possible? Why or why not?

Which Garage Is Better?

Problem 2 – Parking Garage Problem

The rates for two different parking garages are below. The **maximum** stay is 24 hours.

2nd Street Garage:

\$10 for the first hour, \$5/hr for the next 4 hours, and \$3/hr thereafter

9th Street Garage:

\$8/hr for the first 5 hours then a \$40 flat fee for any hours beyond that

Write the piece-wise functions that model each of the parking garage rates.

$f(x) =$

$g(x) =$

Use the **Intersection Point(s)** tool to find the intersection points. Record the coordinates.

- (_____ , _____)
- (_____ , _____)

Questions:

- 1) Which garage costs less for a short stay? For example, you go to a movie and only need parking for 2.5 hours.
- 2) What if you decide to go out after the movie and will need an additional 2 hours. Which garage will cost less?
- 3) What if you need to stay over because you stayed out too long and were too tired to drive? Assume you need an additional 12 hours. Which garage will cost less?
- 4) When are the two rates equal?