## *I Walk the Line*

## *(Note: Could eliminate “solving for x” problems in #1, #2). For before lecture on 2.1.3)*

1. Slimy Sam is on the lam from the law. Being not-too-smart, he drives the clunker of a car he stole east on I-70 across Ohio. Because the car can only go a maximum of 52 miles per hour, he floors it all the way from where he stole the car (just now at the Rest Area 5 miles west of the Indiana line) and goes as far as he can before running out of gas 3.78 hours from now.

1. Where will he be 3 hours after stealing the car?
2. Where will he be when he runs out of gas and is arrested?
3. Where will he be *x* hours after stealing the car?
4. When will he be at mile marker 99 (east of Indiana)?
5. When will he be at mile marker 71.84?
6. When will he be at mile marker *y*?
7. Answer parts (c) and (f) if the car goes a maximum of *m* miles per hour and he started *b* miles east of the Ohio-Indiana border.
8. What “form” of the equation of a line does this problem motivate?

2. Free-Lance Freddy works for constant hourly rates, depending on the job. He also carries some spare cash for lunch. To make his employers sweat, Freddy keeps a meter on his belt telling how much money they currently owe (with his lunch money added in, thus giving the total amount of money he has).

* 1. On Monday, 3 hours into his work as a gourmet burger flipper, Freddy’s meter reads $42. 7 hours into his work, his meter reads $86. ***Without finding his amount of lunch money***, if he works for 12 hours, how much money will he have? When will he have $196?
  2. On Tuesday, Freddy is CEO of the We Say So Company. After 2.53 hours of work, his meter reads $863.15 and after 5.71 hours of work, his meter reads $1349.78. Without finding his amount of lunch money, if he works for 10.34 hours, how much money will he have? How much time will he be in office to have $1759.21?
  3. On Wednesday, Freddy is starting goalie for the Columbus Blue Jackets. After hours of work, his meter reads dollars and after hours of work, his meter reads dollars. Without finding his amount of lunch money, if he works for *x* hours, how much money will he have? How much time will he be in front of the net to have *y* dollars?
  4. What “form” of the equation of a line does this problem motivate?

3. Counterfeit Cathy sells two kinds of cereal: Square Cheerios for $4 per pound and Sugarless Sugar Pops for $5 per pound.

* 1. If Cathy’s goal for today is to sell $1000 of cereal, how much of each kind should she sell?
  2. Assume *x* is the number of pounds of Square Cheerios she sells and *y* is the number of pounds of Sugarless Sugar Pops she sells. What does the slope stand for in this situation? The y-intercept? The x-intercept?
  3. If she sells Square Cheerios for *a* dollars per pound and Sugarless Sugar Pops for *b* dollars per pound and she wants to sell *c* dollars of cereal, write an equation that relates the amount of Sugar Pops Cathy sells to the amount of Cheerios she sells. What “form” of the equation of a line does this problem motivate?
  4. Write a function in the form # Sugar Pops Sold = *f(*# pounds of Cheerios sold*)*.

Also:

FM: 1.2: Write equation of line given info., including parallel to y = 3x+5 (Note: Show there exists a unique line with that info geometrically).

ORCCA: around p. 100: Several problems\_ given info of 2 lines. Find where equal or one greater than another. Several contexts.

S-Z; p.154: Find slope/int wrt Temp vs. time.

F(x) = (x^2-4)/(x-2): Maybe with function definition? And y= (3-2x)/4.

p. 159: Cost of producing x systems: several questions given formula.

p. 163-5: several contexts.

APC: p. 40: thru (4. 9) and parallel to 2x-3y = 5. Given graph, find formula.

p. 43 thru 49: Meaning of slope with odd units (chirps per minute vs. temperature). Swap x, y. Meanings of points.

Calc-medic: Sections 0.4 and 0.5

Yoshiwara: Linear models and linear functions: All forms. Use tables, graphs, formulas to answer questions in homework- several contexts.