

FINAL EXAM, PART 1

PRACTICAL EXAM

ALGEBRA 1 UNIT 1

NAME: TEACHER KEY

Problem I Solution:

I can work 5 hours on Saturday.

I can work 5 hours on Sunday.

I can work 4 hours on Monday.

I can work 1 hour on Tuesday, which is less than 2 hours so I cannot work.

I can work 4 hours on Wednesday.

I can work 1 hour on Thursday, which is less than 2 hours so I cannot work.

I can work 4 hours on Friday.

This is a total of 22 hours per week.

For the 4 weeks I can work a total of 88 hours.

If I want to buy the jacket and the present I need to take home \$354.13. (The price of both items plus 8% tax)

Since I can work 88 hours I need to take home \$4.03 per hour. The electrician job requires 200 hours of training at \$3.25 per hour so I will not be able to make enough money in time on this job. The fast food restaurant also pays \$3.25 per hour so this will not work either. The Busboy pays $\$3.00 + \$3.25 = \$6.25$ per hour and the street sweeper pays $\$7.00 - \1.00 or $\$6.00$ per hour. Therefore the busboy job pays more. After taxes the busboy job pay $.9 * \$6.25 = \5.63 per hour. This will be enough to buy both items.

If I work the entire 88 hours I will make \$495.44. This will give me an extra \$141.31. Otherwise I could work only 63 hours, or 15.75 hours per week and make just enough money.

Problem II Solution

Notice the candy 1 sells for 2.2 times the cost.

Candy 2 sells for 2 times the cost.

Candy 3 sells for 1.9 times the cost.

Candy 4 sells for 1.6 times the cost.

So we are best off if we can sell as much of candy 1 as we can. The next best is then candy 2 and so on.

First decide how much it will cost to buy the minimum required of each candy. (10 of the first 3 and 20 of the last)

This will cost a total of \$27.50, which will leave \$12.50 left.

Since we want to buy as much of candy 1 as we can, we should then buy 12 more of candy 1. This will then leave \$0.50, which we will spend on 1 of candy 3 since it is too little to buy either candy 1 or 2.

So in total I will buy 22 candy 1, 10 candy 2, 11 candy 3 and 20 candy 4.

I make \$1.20 on candy 1, \$0.75 on candy 2, \$0.45 on candy 3 and \$0.15 on candy 4. This gives me a total profit of \$41.85. This is more than 100% on my investment.