**Puzzle 1**

A guy passes by a group of people saying, Hi 100 guys, one replied: If you doubled us, then add one half of us, and add one forth of us, then add 1, we will be 100.

How many guys exist in the group?

**Puzzle 2**

You have $100 Dollars; you want to purchase 100 birds. Hen price is $5, Pigeons price is $2, each 10 birds Costs $1, your job is to find how many types of each to purchase in 100. You should use all $100; you should buy exactly 100 birds.

**Puzzle 3**

العدد المكون من رقمين اذاجمعنا رقميه وضربناه في 3 يعطينا نفس العدد

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**Puzzle 4**

في المخبز ... كان على الطاولة عدد من أرغفة الخبز...

 جاء الزبون الأول فأخذ نصف الكمية و زاد عليها رغيفاً .

 دخل الزبون الثاني و أخذ نصف ما بتقى و زاد عليها رغيفاً .

 جاء الثالث فأخذ نصف الكمية و زاد رغيفاً فلم يبقَ منها شيء ..

كم كان عددها في البداية ؟؟
**Example 1: Chairs Example**

A company produces 2 types of chairs, luxurious and professional. Both are composed of 2 types of metal which are Aluminum and Iron. The profit gained from each luxurious type is $10 while the profit gained from each normal one is $15. Each Luxurious chair is composed of 2kg Aluminum and 3kg Iron, while the Professional chair is composed of 4kg Aluminum and 2kg Iron. If you know that total weight of Aluminum used in a day shouldn’t exceed 100Kg, and the total weight of Iron used should be less than or equal 80Kg.

What is the number of chairs the company should produce in order to maximize the profit?

Use the excel worksheet to define the variables and formulas. Use the Solver to define the target cell, changing cells, constraints to solve for required.

**Example 2: Running a Coffee Example**

We’re running a coffee shop that currently sells three beverages: regular fresh-brewed coffee, premium coffee latte and premium coffee mocha. We currently price regular coffee at $1.25, coffee latte at $2.00, and coffee mocha at $2.25, but we’re not sure what our revenue potential is and what emphasis
we should give to each of the beverages. (Although the premium coffees bring in more money, their ingredients are more expensive and they take more time to make than regular coffee.) Because of storage facilities and merchandising constraints, we’re currently able to produce only 500 cups of coffee (both regular and premium) per week. In addition, our supply of chocolate restricts the production of coffee mochas to 125 per week, and a milk refrigeration limitation restricts the production of premium coffee drinks to 350 per week.

We can make some basic calculations by hand, but we want to structure our sales data in a worksheet so that we can periodically add to it and analyze it using the Solver.

**EXAMPLE3: BUYING CHOCOLATE**

You have a $2.00 voucher to spend on chocolate.

A small (100g) bar costs 17Cents, a large (250g) one is 32Cents. However, there's a special deal on the small bars whereby if you buy 3 you get one free. You want to buy as much Weight chocolate as possible - ideally, you want to spend every Cent as the shopkeeper doesn't give change for a voucher. How many of each sort should you buy?

**EXAMPLE4: SCHEDULING EMPLOYEES EXAMPLE**

Optimize your employees by determining the right number of techs you need at any particular time.

Solver can help you create a schedule for your IT staff who are working the weekend shift. Factors to consider include: an employee will work Friday and Saturday or Saturday and Sunday but not all three days; also, you want to keep costs down, but you need to schedule at least 25 employees on Friday, 35 on Saturday, and 12 on Sunday.
A confused bank teller transposed the dollars and cents when he cashed a check for Ms Smith, giving her dollars instead of cents and cents instead of dollars. After buying a newspaper for 50 cents, Ms Smith noticed that she had left exactly three times as much as the original check. What was the amount of the check? (Note: 1 dollar = 100 cents.)

http://www.qbyte.org/puzzles/puzzle01.html

The sum of the reciprocals of two real numbers is −1, and the sum of their cubes is 4. What are the numbers?

**Example 7: Expectations—Grades**

You have the following grades

First: 17/20, Second: 18/20, participation 8/10

What should your grades in Final exams (practical /10, theoretical /40) be to get grade 80/100