



Gemstones on a Bracelet

General Instructions: This task has three parts: Part1 has two questions, Part 2 has two questions and part 3 has one question.



You are the owner of a gemstone company that sells the stones to luxury jewelry makers. You have acquired a collection of diamonds, sapphires and emeralds. In addition, you have a large supply of crystals in your inventory. You will sell combinations of these gems to the stores for them to make bracelets for customers. You will see that each store will have different requests and needs for your products. Apply mathematical skills to manage you inventory, set price quotes for the stores, and keep track of your profit.

**Part 1**

Your company places 10 gemstones on a bracelet and then sells them to stores. The stores can choose any combination of 4 types of gems. The prices and gems are described in the data set chart below.

Gem	Cost in Dollars
Diamonds	20,000
Sapphires	10,000
Emeralds	12,500
Crystals	7,500

1. A small store can afford \$200,000 per bracelet. They do not want any diamonds.
What is the greatest number of emeralds they could have?



2. A large store wants to spend \$40,000 per bracelet with half diamonds. List 3 possible combinations. Show the mathematical calculation for each.

- **Combination 1:**

- **Combination 2:**

- **Combination 3:**



Part 2

Use the data set in **Part 1** to answer questions about your inventory. You own exactly 450 gems totals. The inventory is sorted, counted and percentages are given below:

- Diamonds 10%
- Sapphires 25%
- Emeralds 15%
- Crystals 50%

1. What is the total value of your inventory? Show your calculation and circle the dollar value.

2. Write a step-by-step explanation of how you arrived at the answer to question number 1.

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Part 3

You sell your gems for more than you pay to purchase them so that you can make a profit.

Look at the table below to determine your profit.

Gem	Sale Price	Your Cost
Diamonds	\$20,000	\$15,000
Sapphires	\$10,000	\$5,000
Emeralds	\$12,500	\$5,000
Crystals	\$7,500	\$2,500



1. What is the profit on each item for one transaction? Circle the highest profit gem.

Diamonds =

Sapphires =



Emeralds =

Crystals =