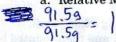


A	GREAT NORTHERN BEANS BEANS	552 beans 91.5 grams total
В	18EBS	552 beans 266.1 grams total
C	GÓΨΑ	552 beans 121.4 grams total

 IF we arbitrarily choose the lightest substance and divide the others by it, we can get relative ratios of the mass of single pieces. Do this for each substance.
 a. Relative Mass of Substance A



b. Relative Mass of Substance B

266, 1 a Pinto

91.54 NAVE

291.54 NAVE

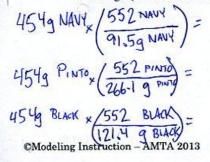
291.55 NA

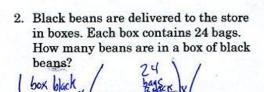
c. Relative Mass of Substance C

121.49 Black

91.59 Navy = [.3 black navy wass rational place of the content o

 A bag of beans has a mass of 454 grams. How many of each bean are in the bag? (3 calculations)





3. You can buy a large bag of Navy beans. The bag contains 3 pounds. (1 lb = 454 g) How many navy beans are in the large bag?

4. For quality control inspector will randomly measure the mass of a box of bean to make sure there is the correct number of bags. During one of these inspections it was determined that the mass of a box of black beans was 10.4 kg. Does this box have the correct number of bags? Explain why or why not? (use conversions from previous questions to help.)

5. Someone gave you a container containing 2500 pinto beans. You are given the task to put these pinto beans in bags. How many bags of pinto beans can you make and how many pinto beans are leftover? 6. If you had 1 million beans which bean would give you the most bags?

 If you had 1 million black beans. Is this enough beans to form a box? How many boxes can 1 million black beans form?

from #2

5. Assuming that each human being has 60 trillion body cells (6 x 10<sup>13</sup>) and that the earth's population is 6 billion (6 x 10<sup>9</sup>), calculate the total number of living human body cells on this planet. Is this number smaller or larger than a mole? Divide the larger value by the smaller to determine the relative size of the two values.

7. A supercomputer, nicknamed
Roadrunner, built by IBM for the Los
Alamos National Labs can perform about
1.03 petaflop/s (1 petaflop is 10<sup>15</sup>
calculations). Determine how many
seconds it would take this computer to
count a mole of things. Convert this
figure into years: 43

mole of color (1 pets) | sector (1 pets) | secto

8. If you started counting when you first learned how to count and then counted by ones, eight hours a day, 5 days a week for 50 weeks a year, you would be judged a 'good counter' if you could reach 4 billion by the time you retired at age 65. If every human on earth (about 7 x 109) were to count this way until retirement, what fraction of a mole would they count?

7 × 10 9 exple ×