

## Exploring the World of Math

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### **Test 7: Sharing and Apportionment**

1. Four people named Aspen, Bart, Candi, and Delta will divide a cake that is separated into four slices, s1, s2, s3, and s4. The table gives us the value of each slice in the eyes of the individuals.

	S1	S2	S3	S4
Aspen	\$2.90	\$4.15	\$3.40	\$2.85
Bart	\$3.00	\$3.00	\$3.00	\$3.00
Candi	\$4.00	\$3.50	\$3.00	\$2.75
Delta	\$3.25	\$3.65	\$3.75	\$4.00

- What items are fair shares to Aspen?
  - What items are fair shares to Bart?
  - What items are fair shares to Candi?
  - What items are fair shares to Delta?
  - What is the only fair division of the cake?
2. Explain the Divider Chooser method where there is a cake that is one half chocolate and one half yellow. Steve likes chocolate cake 3 times better than the yellow cake and he is the divider. Marsha likes yellow cake 2 times better than chocolate cake and she is the chooser.
- How should Steve divide the cake if he does not know Marsha's preference?
  - How should Steve divide the cake if he does know Marsha's preference?
3. Rebecca likes veggie pizza 4 times more than meatlover's pizza. We have a single pizza, one half meatlover's and one half veggies. The extra large pizza costs \$20.
- How much is the veggie side of the pizza worth to Rebecca?
  - How much is the meatlover's side of the pizza worth to Rebecca?
  - How much is  $\frac{1}{4}$  of the veggie pizza and  $\frac{1}{4}$  of the meatlover's pizza worth to Rebecca?

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4. Three regions of our country are called Trionia, Troiska, and Trisuccany. The population of Trionia is 11,235,981. The population of Troiska is 9,801,792. The population of Trisuccany is 16,455,225. In our government, we have 200 seats in the House of Representatives.

- What is the standard divisor for our population?
- How many seats will Trionia receive based upon their population?
- How many seats will Troiska receive based upon their population?
- How many seats will Trisuccany receive based upon their population?

5. Water is allocated in Hotland based upon population. The chart below shows the amount of water in million of gallons. Our total population in Hotland is 9,375,905.

	North Zone	East Zone	South Zone	West Zone	Central Zone
Gal of water	40 million	24 million	32 million	38 million	26 million

- What is the population of the North Zone?
- What is the population of the East Zone?
- What is the population of the South Zone?
- What is the population of the West Zone?
- What is the population of the Central Zone?