

Exploring the World of Math

Name: _____ Date: _____

Review

1. Five people named Tyrone, Mammoth, Cindi, Kiale and Thomas will divide a cake that is divided into five slices, s1, s2, s3, s4 and s5. The table gives us the value of each slice in the eyes of the individuals.

	S1	S2	S3	S4	S5
Tyrone	\$1.90	\$2.15	\$2.40	\$2.90	\$3.40
Mammoth	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50
Cindi	\$3.50	\$3.00	\$2.50	\$2.25	\$2.00
Kiale	\$3.75	\$2.75	\$3.25	\$2.85	\$3.35
Thomas	\$3.00	\$2.70	\$1.90	\$3.01	\$3.10

- What items are fair shares to Tyrone?
 - What items are fair shares to Mammoth?
 - What items are fair shares to Cindi?
 - What items are fair shares to Kiale?
 - What items are fair shares to Thomas?
 - 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. Sam likes chocolate cake 5 times better than the yellow cake and he is the divider. Stacey likes chocolate cake 2 times better than yellow cake and she is the chooser.
- How should Sam divide the cake if he does not know Stacey's preference?
 - How should Sam divide the cake if he does know Stacey's preference?

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3. Australia, New Zealand, Korea and Japan are bidding on four items labeled s1, s2, s3 and s4. They all want to win one item and leave for home. Their bids are:

	S1	S2	S3	S4
Australia	\$13 billion	\$11 billion	\$9 billion	\$5 billion
New Zealand	\$9 billion	\$7.5 billion	\$10.5 billion	\$8 billion
Korea	\$7 billion	\$8 billion	\$10 billion	\$14 billion
Japan	\$11 billion	\$11 billion	\$11 billion	\$11 billion

- a. What items are fair shares to Australia?
 - b. What items are fair shares to New Zealand?
 - c. What items are fair shares to Korea?
 - d. What items are fair shares to Japan?
 - e. What is the only fair division of s1, s2, s3 and s4?
4. Tina likes sausage pizza 4 times more than veggie pizza. We have a single pizza, one half sausage and one half veggie. The extra large pizza costs \$18.
- a. How much is the sausage pizza worth to Tina?
 - b. How much is the veggie pizza worth to Tina?
 - c. How much is $\frac{1}{2}$ of the veggie pizza worth to Tina?
 - d. How much is $\frac{1}{4}$ of the veggie pizza and $\frac{1}{4}$ of the sausage pizza worth to Tina?

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5. Six regions of our country are called Oneland, Twoland, Threeland, Fourland, Fiveland and Sixland. The population of Oneland is 87,125. The population of Twoland is 101,082. The population of Threeland is 165,231. The population of Fourland is 77,250. The population of Fiveland is 103,504. The population of Sixland is 79,545. In our government, we have 85 seats in the House of Representatives.
- What is the standard divisor for our population?
 - How many seats will Oneland receive based upon their population?
 - How many seats will Twoland receive based upon their population?
 - How many seats will Threeland receive based upon their population?
 - How many seats will Fourland receive based upon their population?
 - How many seats will Fiveland receive based upon their population?
 - How many seats will Sixland receive based upon their population?

6. Milk is distributed to elementary schools based upon population. The total district population is 8,345 elementary school students. The following table shows the amount of milk sent to six schools.

	School A	School B	School C	School D	School E	School F
Gal of milk	53 gal	68 gal	42 gal	77 gal	82 gal	50 gal

- What is the population of school A?
- What is the population of school B?
- What is the population of school C?
- What is the population of school D?
- What is the population of school E?
- What is the population of school F?