Lesson Title: Produce Stand (circle version)

Grade: 4th

Content standard: 4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creation common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, <, or =, and justify the conclusions, e.g., by using a visual fraction model.

Materials: Each group of 2-4 players will need a) 1 game board (4 congruent circles with diameters of 9 cm. attached). b) a set of 48 cards (attached). Twelve cards are marked for each of the fractions ½, ¼, 1/8, and 1/12. c) a set of plastic fraction circle pieces (9 cm. diameter) that include halves, fourths, eighths, and twelfths.

Shared experience and procedure details: This experience is in game format. This game continues the "Produce Stand" fraction metaphor. Here are the rules.

1. The goal of the game is to be the player who can place a piece on one of the circles on the board that exactly fills up that circle. A player who does that gets 1 point for each completed circle. 2. Deal 5 cards to each player. 3. Player 1 looks at the fractions listed on the dealt cards. Player 1 selects 1 card and gets to draw a plastic piece of that fraction and place it in any of the circles on the board where there is space. If a player has multiple cards representing fractions with the same denominator that player may choose to play some or all of those pieces, but they all must be placed in the same circle. For example if a player has been dealt ½, ¼, 1/12, 1/12, 1/12, that player may place one, two or three 1/12 pieces in a circle. After placing pieces and discarding played cards, the player then draws replacement cards back to 5 cards. 4. Player 2 plays. Player 2 is not required to place piece(s) in the same circle as player 1. 5. When a player can make a play that completes a circle that player is awarded 1 point. 6. If a circle has accumulated a collection of pieces such that no pieces that are available can be added without exceeding 1 circle, that circle is dead (for example ½ +1/4+1/8+1/12). 7. If a player cannot make a play with cards in hand, but the remaining space could potentially be filled by another player with a different available card, the player loses turn.

After a period of play ask students to clear board, and reset it the following way: Fill circle 1 with halves, circle 2 with fourths, circle 3 with eighths, and circle 4 with twelfths. Ask the students to draw a picture and write about the following task: Find 4 ways to fill up ½ of a circle. Two of your ways must use more than one type of piece.

Possible picture: The pictures should show half circles that are divided up into different number and sizes of pieces. The halves may also be reconfigured into rectangles. There may be keys, notation, or words that describe the different fractional pieces.
Possible people talk: Not all combinations can be made to equal ½. The smaller the piece the more you need. There are three ways to do it using one type of piece. There are three ways to do it using two types of pieces.
Feature talk: fractions, basket, pieces, colors, ½, ¼, 1/8, 1/12, add, substitute, replace, equal, same, equivalent, size, area, whole
Symbolic language: Invented or conventional symbols should be used to express each of the ways students found to make ½. There should be symbols for each of the fractions, the number of pieces, the act of combining pieces, and the equivalence with ½.
Reinthal 3/17

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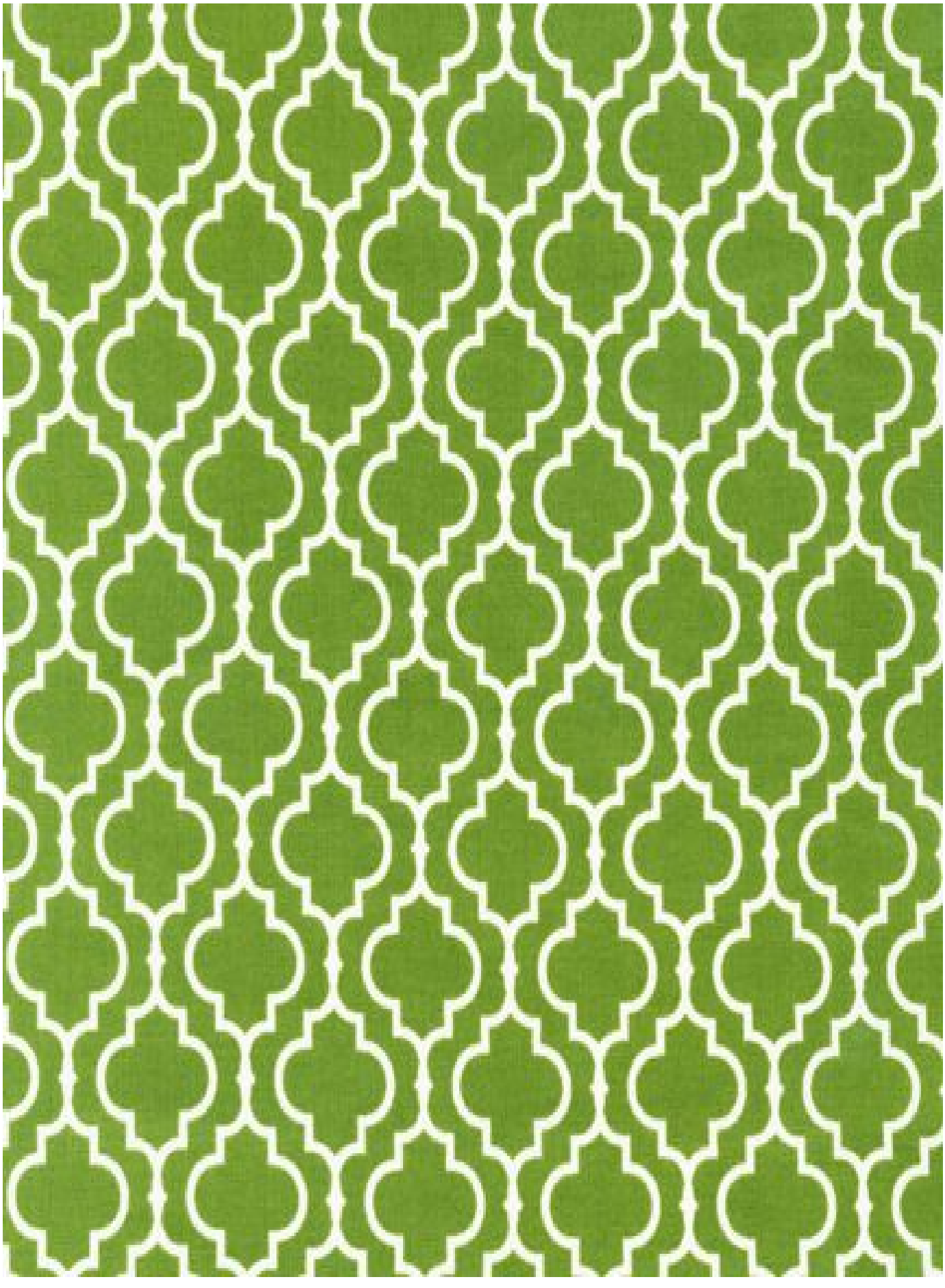
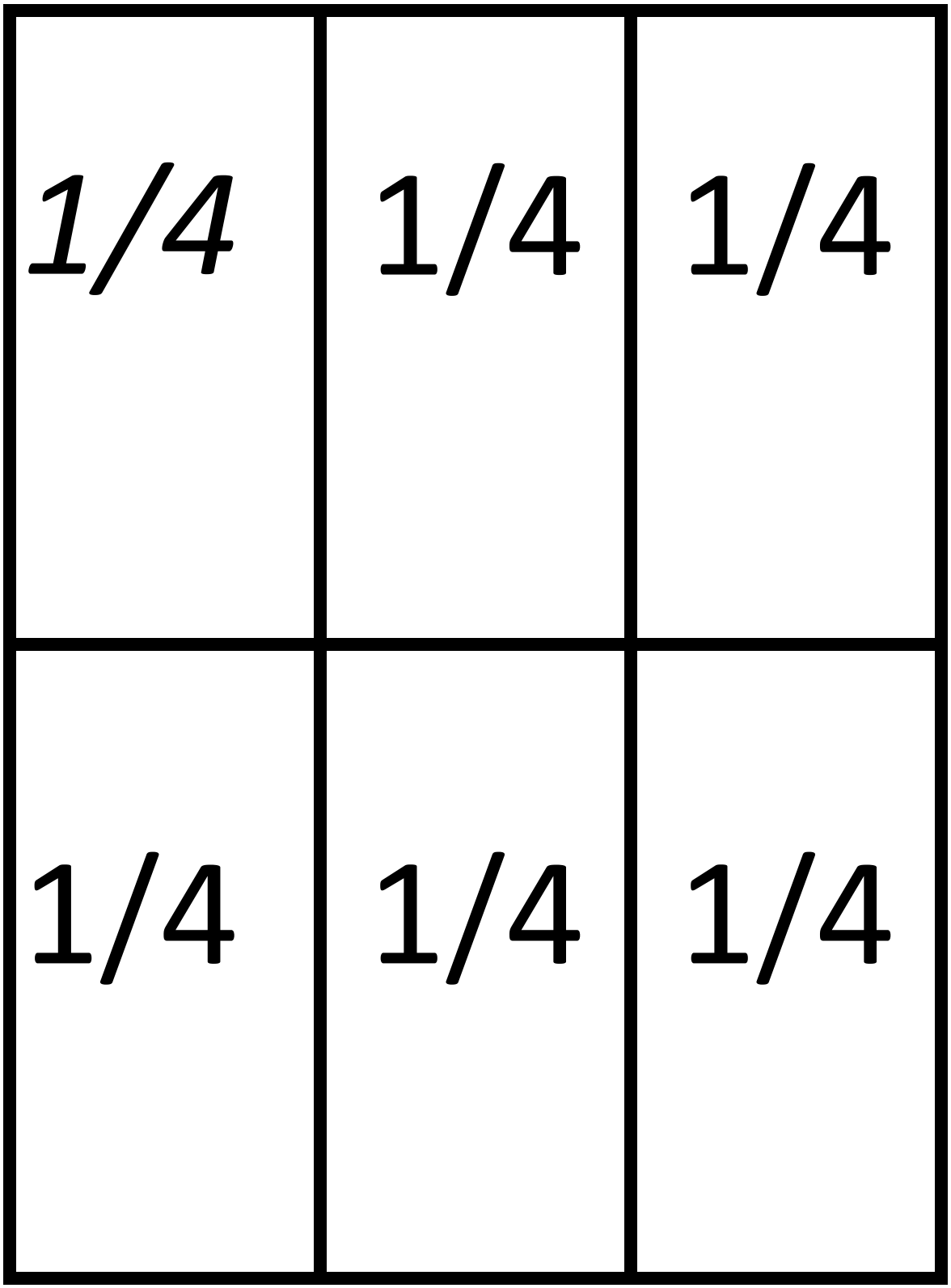
1/2	1/2	1/2

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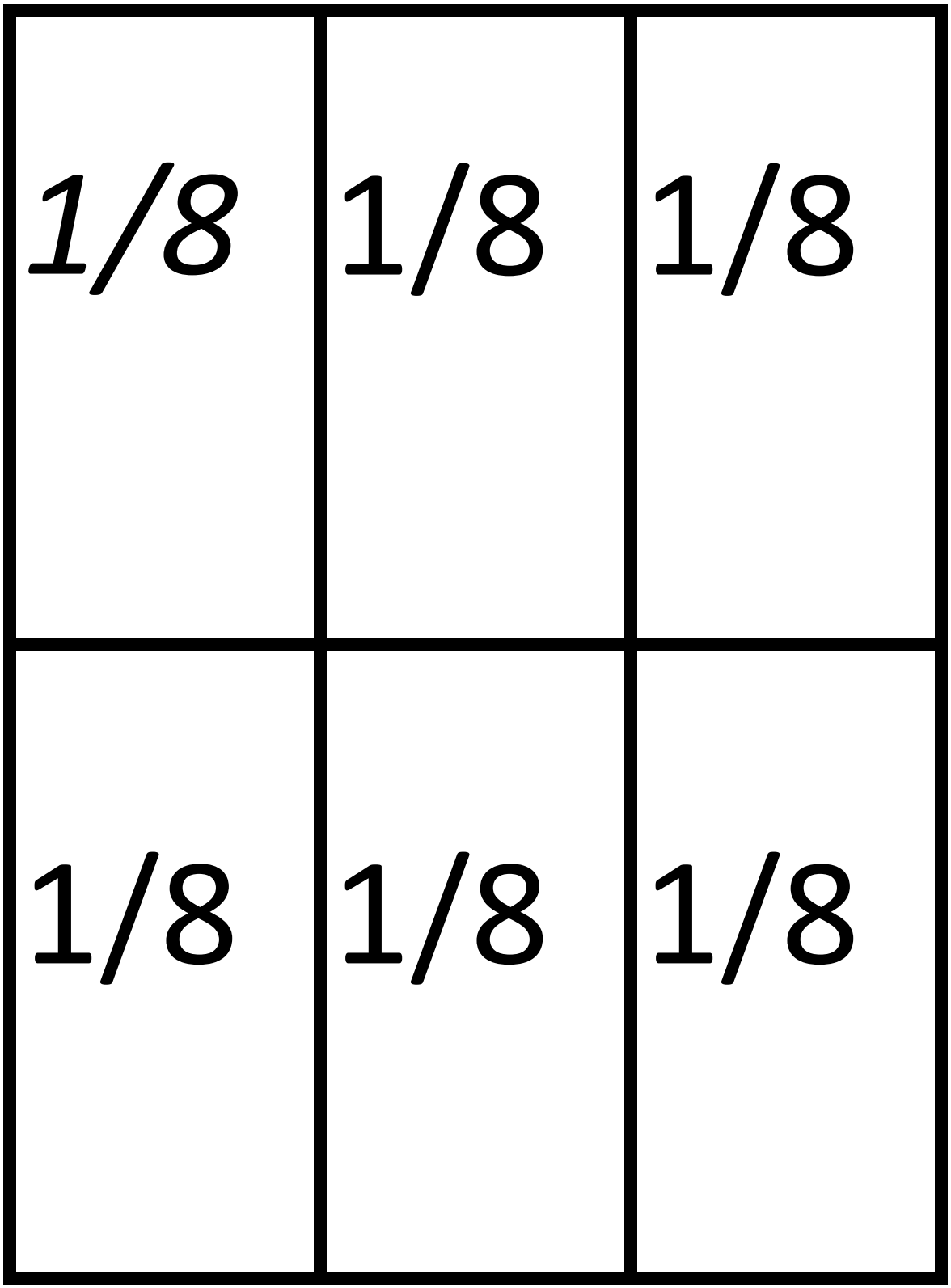
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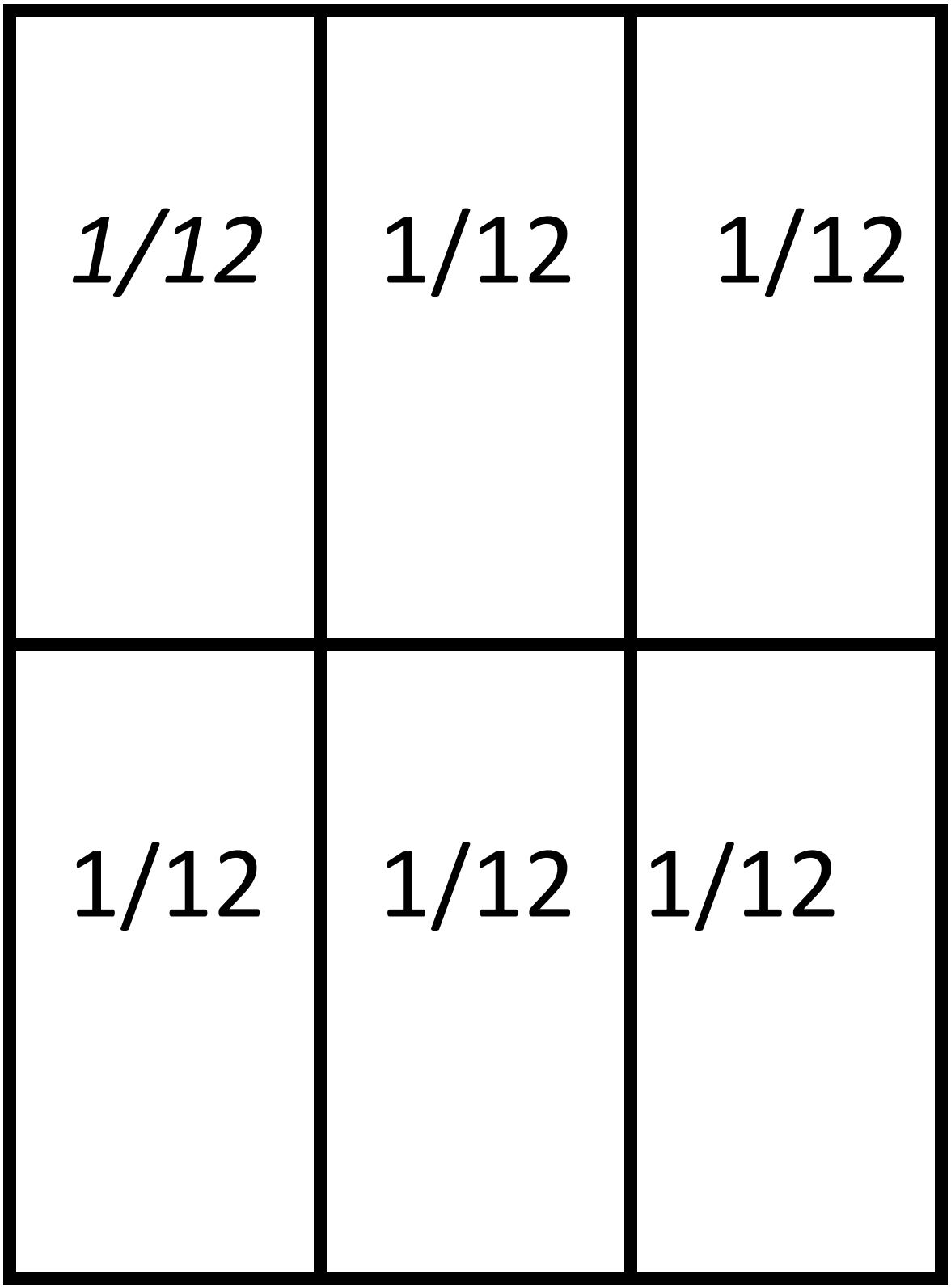
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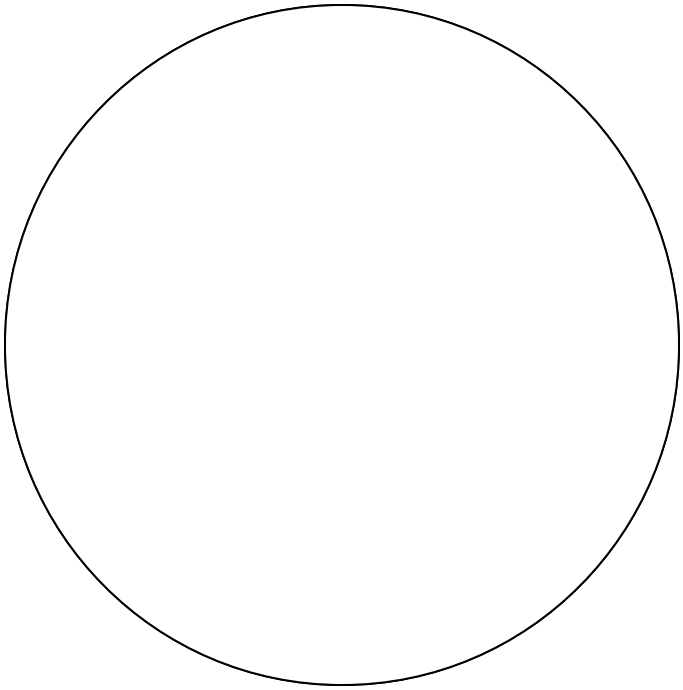

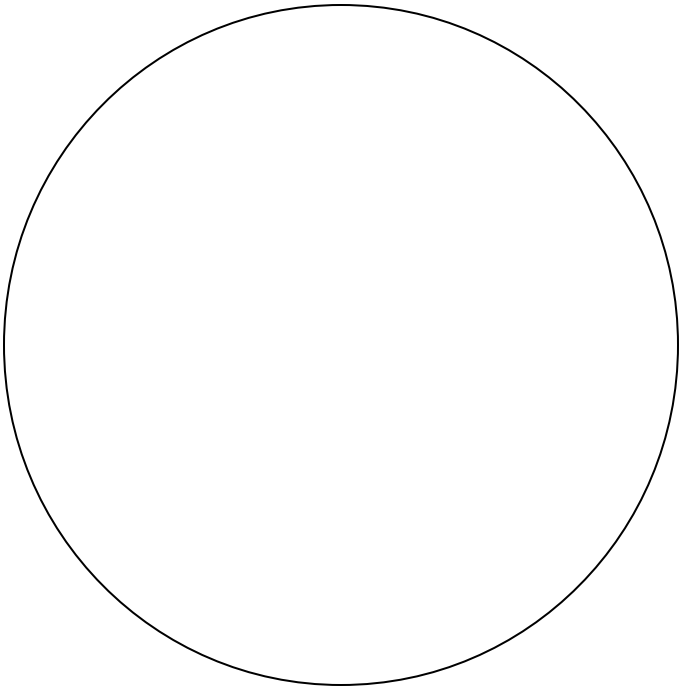

Orange – Halves

Purple – Fourths

Brown – Eighths

Tan - Twelfths