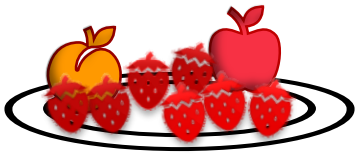
First Name: _____ Last Name: _____ Grade: _____

Teacher: _____ Parent's email: _____

Fair Shares and Equal Groups

Welcome to Math Challenge #14. In this challenge, we will work with situations where items must be divided evenly, shared fairly, or arranged into equal groups. These problems help build a strong understanding of division, fractions, ratios, and logical reasoning. We need to think carefully about how quantities can be split, grouped, or compared — and in many cases, we will need to decide which groupings are possible and which are not. Get ready to solve problems that involve sharing, organizing, and balancing quantities in creative and thoughtful ways!

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.

		Answer
1.	Dad bought 10 apples. He asks you to put exactly half of them into a red bowl and the other half into a green bowl. How many apples should you put into the red bowl? 	
2.	Mia and her two friends received a bag of 6 cookies. They want to share the cookies so that everyone gets the same number of cookies. How many cookies will each person get? 	
3.	Mrs. Hewitt takes seven strawberries from the large plate. She puts the strawberries into 2 snack bags so that each bag has the same number of strawberries. She cannot cut any strawberries, and she puts as many whole strawberries as possible into the two bags equally. Any leftover strawberries are placed into an extra bag. How many strawberries are in the extra bag? 	
4.	Grandma and Leo are playing a card game. There are 12 cards that are split between them equally. How many cards will each of them have?	

5.	Sarah bought 5 sheets of stickers. Each sheet has 6 stickers. She wants to give stickers to her 4 friends so that each friend gets the same number of stickers. She gives each friend as many stickers as she can. She keeps any leftover stickers. a. How many stickers does each friend get? b. How many stickers does Sarah keep for herself?	*a.* *b.*
6.	Mr. Chen has 42 markers and 30 colored pencils to split equally among 6 art groups. How many total art supplies (markers and colored pencils combined) will each group receive?	
7.	A cake was cut into 12 equal pieces. A group of 5 students shared $\frac{5}{6}$ of the cake equally. How many pieces did each student get?	
8.	A classroom has 36 crackers and 24 cheese cubes. The teacher wants to make identical snack packs so that: • Each pack contains the same number of crackers as every other pack. • Each pack contains the same number of cheese cubes as every other pack. • All the crackers and cheese cubes are used. • The number of snack packs must be greater than 5. a. What are all possible numbers of snack packs the teacher can make? b. The teacher decides to make the greatest possible number of snack packs. How many crackers will be in each pack?	*a.* *b.*
9.	A pizzeria slices each pizza into 8 equal slices. The class orders 6 pizzas. If the slices are to be shared equally among 16 students, how many slices does each student receive?	

10.	A teacher made some number of snack packs for a field trip. Each pack had 4 pretzels and 3 crackers. She used 84 pretzels in total. a. How many snack packs did she make? b. How many crackers were used?	*a.* *b.*
11.	A cafeteria prepares identical fruit bowls using apples and bananas. Each bowl must contain apples and bananas in a ratio of 2 to 1. The cafeteria uses all the apples and all the bananas and wants to make the greatest number of bowls possible. They have 48 apples and 30 bananas. How many complete fruit bowls can they make?	
12.	A teacher has $\frac{5}{6}$ of a yard of ribbon. She needs pieces that are $\frac{1}{8}$ yard long for gift bows. How many full pieces can she cut?	
13.	A festival organizer has 90 keychains, 72 stickers, and 54 badges. They want to create identical gift bags. • Every bag must contain the same number of keychains, stickers, and badges. • All items must be used. a. What is the greatest number of identical gift bags they can make? b. How many badges will be in each bag?	*a.* *b.*
14.	A baker makes 10 loaves. Each loaf yields $\frac{3}{4}$ pound of bread for sandwiches. If each sandwich needs $\frac{1}{5}$ pound of bread, how many full sandwiches can the baker make?	

15.	A school needs to assign all students and chaperones to buses. They have 180 students and 45 chaperones. Each bus must carry: • the same number of students, • the same number of chaperones, • no more than 40 total passengers, • and for efficiency, more than 10 passengers. a. What are all the possible numbers of buses they can use? b. If the school chooses the smallest possible number of buses, how many students will be on each bus?	*a.* *b.*
16.	Three friends, Amara, Ben, and Chloe, pooled their money to buy a large box of assorted seasonal produce at the farmers' market. The box contained 96 pieces of fruit in total. They agreed to share the fruit based on the ratio of the amount of money each person contributed: Amara contributed \$5. Ben contributed \$7. Chloe contributed \$4. How many pieces of fruit did each friend receive? a. Amara: _____ b. Ben: _____ c. Chloe: _____	*a.* *b.* *c.*
17.	A purification machine processes water in 3 stages. • Stage A processes $\frac{2}{5}$ of the water in the tank. • Stage B processes $\frac{3}{4}$ of the remaining water. • Stage C processes the last 18 liters. How many liters were in the tank at the start?	
18.	A construction company is distributing a \$15,200 bonus among three work teams: Carpenters, Electricians, and Plumbers. The distribution must satisfy the following conditions: • The bonus for the Carpenters and Electricians is in the ratio of 5 : 3. • The bonus for the Electricians and Plumbers is in the ratio of 2 : 1. How much money does each team receive? a. The carpenters receive: _____. b. The Electricians receive: _____. c. The Plumbers receive: _____.	*a.* *b.* *c.*

Solutions available on April 24, 2026
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