Module 2 Working with Number Systems

Practice Problems 2.1

For Problem 1-8, find the factors of the integer given.

1.	34	2.	44
3.	20	4.	19
5.	35	6.	100
7.	8	8.	36

For Problem 9-12, find the Greatest Common Factor (GCF) of the pair of integers given.

9. 15 and 35). 20 and 40
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11. 3 and 13 12. 15 and 30

For Problem 13-16, use prime factorization to find the Greatest Common Factor (GCF) of the pair of terms given.

13. 27 and 15	14.	$11x^2y^2$ and $22x^2y$
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15. 2mn and 12ab 16. $32x^2yz$ and $48xy^2z$

For Problem 17-20, solve the word problem.

17. Which is the GCF of $18x^2y$ and 24xy, $6x^2y$ or 6xy?

18. If the area of one rectangular pool is $18x^2y$ and the area of another rectangular pool is 24xy, what is a possible length that is a common maximum side length of both pools?

19. What is the Greatest Common Factor (GCF) of a pair of prime numbers? Explain your answer.

20. Kristen has a set of 33 rare coins. She has another set of 21 old coins. She wants to make the largest number of bags of coins to sell between the two sets. Moreover, Kirsten wants to have an equal number of coins from the first set in each bag and wants the second set of coins to be equally divided among all the bags. There must be at least two of each coin in every bag. How many coins will be in each bag from the first set? How many coins will be in each bag from the second set?

Section 2.2 The Least Common Multiple (LCM)

Practice Problems 2.2

For Problem 1-10, find the Least Common Multiple (LCM) of the terms given.

1.	8 and 12	2.	4 and 120
3.	17 and 5	4.	12 and 15
5.	15 and 25	6.	x^2y and x^3y^4
7.	$3ab^2$ and $4ab^3$	8.	$10x^2y$ and $55x^2yz$
9.	12 and 20 and 25	10.	4 and 9 and 18

For Problem 11-15, use the information given to solve the problem.

11. The GCF of two numbers is 6. The LCM of the same two numbers is 90. What are these two numbers?

12. List the first ten multiples of 4 and 8. How many common multiples are there?

Math with Mrs. Brown Practice Problems

13. Use prime factorization to find the LCM of 6, 18, and 30.

14. Burgan works out every three days and Cayden works out every four days. They started their summer workouts together on June 1st. When is the next day they will work out together again?

15. On Star Wars Day at a major league ballpark, every guest gets a souvenir bag. Every 7th guest gets a Star Wars shirt, every 4th guest gets a Han Solo bobble-head, and every 6th guest gets a light saber. Some bags will have two or three souvenirs in them. Find the first guest that will receive all four items.

Section 2.3 Proper Fractions

Practice Problems 2.3

For Problem 1-3, solve the word problem.

1. How do you find the Least Common Multiple (LCM) of two prime numbers such as the denominators in $\frac{1}{3}$ and $\frac{1}{5}$?

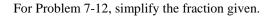
2. How do you find the Least Common Multiple (LCM) of two numbers that are not prime such the denominators in $\frac{1}{8}$ and $\frac{1}{12}$?

3. How do you find the Least Common Multiple (LCM) of two numbers, one of which is prime and one of which is composite, such as the denominators in $\frac{1}{8}$ and $\frac{1}{7}$?

For Problem 4-6, find the common denominator of the terms given.

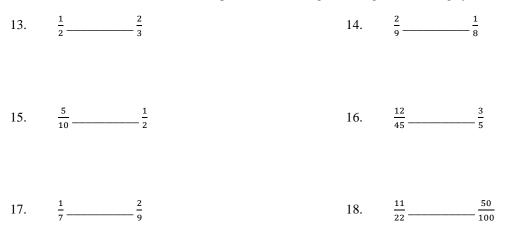
4.
$$\frac{5}{13}$$
 and $\frac{7}{15}$ 5. $\frac{4}{9}$ and $\frac{3}{10}$

6. $\frac{3}{4}$ and $\frac{11}{12}$





For Problem 13-18, compare the fractions given using the following symbols: >, <, =.



For Problem 19 and 20, solve the word problem.

19. Order the following fractions from greatest to least: $\frac{7}{15}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{2}{5}$.

20. Kelsey buys $\frac{2}{3}$ yards of fabric and Savannah buys $\frac{5}{6}$ yards of fabric. Both are the same price per yard. Who will pay more?

Section 2.4 Addition and Subtraction of Proper Fractions

Practice Problems 2.4

For Problem 1-8, add the fractions given.

1.	$\frac{5}{6} + \frac{3}{4}$		2.	$\frac{2}{3} + \frac{9}{10}$
3.	$\frac{3}{8} + \frac{4}{7}$		4.	$\frac{5}{8} + \frac{5}{12}$
5.	$\frac{4}{5} + \frac{3}{7}$		б.	$\frac{2}{9} + \frac{1}{9}$
7.	$\frac{8}{9} + \frac{1}{9}$		8.	$\frac{5}{9} + \frac{6}{9}$
9.	$\frac{2}{3} - \frac{4}{9}$	For Problem 9-16, subtrac	t the fract	

11.	2	2	12	2	3
11.	5	7	12.	5	10

13.
$$\frac{1}{3} + \frac{1}{6} - \frac{1}{2}$$
 14. $\frac{1}{5} + \frac{4}{5}$

15.
$$\frac{5}{7} - \frac{2}{21}$$
 16. $\frac{1}{3} - \frac{1}{4} + \frac{1}{5}$

For Problem 17-20, solve the word problem.

17. Garland ate $\frac{1}{4}$ of a pizza and Peyton ate $\frac{1}{3}$ of the pizza. How much of the pizza did they eat?

18. Drew and Phoenix ate the rest of Garland and Peyton's pizza. How much of the pizza did they eat?

19. Garland, Peyton, Drew, and Phoenix left a \$15 tip after finishing the pizza, which Garland paid one-third of. How much money did Garland leave as a tip?

20. Kaylee and Khyler found a piece of wood 3 yards long to use for a school project. Kaylee cut off a piece from the 3-yard piece that was two-thirds of it and Khyler cut off one-third of a yard. How much wood was left?

Section 2.5 Multiplication of Proper Fractions

Practice Problems 2.5

For Problem 1-5, solve the problem regarding the following expression: $\frac{4}{5} \cdot \frac{15}{16}$

1. Are either of the numbers in the numerators prime?

2. What is the prime factorization of 4? (Notice the 5 in the denominator of the first fraction is prime).

3. For $\frac{15}{16}$, write the prime factorization for the numerator and the denominator.

4. Write the problem as the product of the prime factors of the numerators and the denominators and then simplify it.

5. Simplify the common factors in the first numerator and the second denominator and the first denominator and the second numerator to get the same answer from Problem 4. Which method do you think is easier?

For Problem 6-16, multiply the fractions given.

6.	$\frac{10}{11} \cdot \frac{3}{5}$	7.	$\frac{9}{5} \cdot 5$ (Hint: write 5 as the fraction $\frac{5}{1}$)
	11 5		5 1

8.
$$\frac{8}{11} \cdot \frac{7}{9}$$
 9. $\frac{5}{12} \cdot \frac{6}{13}$

10.
$$\frac{4}{9} \cdot \frac{1}{2}$$
 11. $\frac{3}{4} \cdot \frac{56}{33}$

$12. \qquad \frac{1}{8} \cdot \frac{1}{8} \qquad \qquad 13.$	$\frac{4}{9}$.	7	-
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14.	$\frac{1}{2} \cdot \frac{2}{15} \cdot \frac{4}{9}$		15.	$\frac{3}{8} \cdot \frac{16}{21} \cdot \frac{2}{9}$
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16. $\frac{1}{4} \cdot \frac{1}{4} \cdot \frac{1}{4}$

For Problem 17-20, solve the word problem.

17. When we multiply two proper fractions, will the product be smaller than each number being multiplied or larger than each number being multiplied?

18. Carter ran the 300-meter hurdles in $\frac{56}{60}$ of a minute. Caspar ran it in $\frac{3}{4}$ of Carter's time. How fast did Caspar run the 300-meter hurdles?

19. What is $\frac{1}{5} \cdot 5$?

20. What is $\frac{1}{5} \cdot \frac{1}{5}$?

Section 2.6 Division of Proper Fractions

Practice Problems 2.6

For Problem 1-10, find the reciprocal of the fraction given.

1.	1	2.	2
3.	-3	4.	<u>4</u> 5
5.	$1\frac{1}{2}$	6.	$2\frac{3}{7}$
7.	$-\frac{3}{8}$	8.	0.5
9.	<u>99</u> 100	10.	<u>100</u> 99

For Problem 11-16, divide and simplify the fraction given.

11. $\frac{2}{3} \div \frac{4}{5}$ 12. $\frac{3}{4}$	÷	7 8	
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13.
$$\frac{6}{7} \div 2$$
 14. $18 \div \frac{2}{3}$

15.
$$\frac{1}{3} \div 3$$
 16. $6 \div \frac{3}{4}$

For Problem 17-20, solve the word problem.

17. Micaiah bought a 17-inch piece of Styrofoam; she cut it in half and then cut each of those halves in half. How long is each piece?

18. Lillyann bought $\frac{3}{4}$ -of-a-yard of fabric to make 6 dresses for dolls. How much material does each doll require if she uses all the fabric?

19. Shana has $\frac{1}{4}$ -of-a-yard of ribbon that needs to be cut into pieces that are $\frac{1}{8}$ -of-a-yard long. How many pieces of ribbon will that be?

20. Haley divided two proper fractions and the product was larger than each of the proper fractions. Why did this happen? (Use $\frac{1}{4} \div \frac{1}{8}$ as an example.)

Section 2.7 Improper Fractions and Mixed Numbers

Practice Problems 2.7

For Problem 1-4, follow the instructions given to solve the problem.

1. Circle the improper fractions:

$\frac{1}{4}$	<u>2</u> 9	$\frac{11}{3}$	$\frac{15}{4}$

2. Underline the proper fractions:

22	1	2	10
5	8	3	3

3. Ali lost $\frac{39}{4}$ pounds and Abby lost $\frac{24}{5}$ pounds. Who lost more weight?

4. Jacqueline picked $3\frac{3}{7}$ pounds of strawberries to buy and Alexis picked $3\frac{2}{3}$ pounds of strawberries to buy. Who paid more if the strawberries were priced by pound?

For Problem 5-10, convert the improper fraction given to a mixed number.

5.	28 8	6.	<u>76</u> 10
7.	<u>15</u> 8	8.	22 3
9.	<u>47</u> 5	10.	$\frac{11}{4}$

13

For Problem 11-13, circle the larger fraction from the choices given.

- 11. $\frac{44}{10} \operatorname{or} \frac{7}{5}$ 12. $\frac{3}{2} \operatorname{or} \frac{33}{11}$
- 13. $\frac{15}{3}$ or $\frac{30}{5}$

For Problem 14 and 15, underline the smaller fraction from the choices given.

14.
$$\frac{9}{8}$$
 or $\frac{7}{4}$ 15. $\frac{13}{2}$ or $\frac{17}{2}$

For Problem 16-18, convert the mixed number given to an improper fraction.

16.
$$2\frac{7}{9}$$
 17. $2\frac{1}{5}$

18. $3\frac{2}{7}$

For Problem 19 and 20, solve the word problem.

19. Dar's new house has an office measuring 4.75 meters long by 6.38 meters wide. She priced carpet for 3.0350 square meters of carpet. Is that correct? Why or why not?

20. Jake ran a quarter of a mile in 59.62 seconds and Dillon ran a quarter of a mile in 61.03 seconds. How much faster is Jake than Dillon?

Section 2.8 Adding Mixed Numbers

Practice Problems 2.8

For Problem 1-12, add the terms given.

1.	$4\frac{3}{8} + 3\frac{2}{7}$	2.	$4\frac{2}{3} + 8\frac{9}{11}$
3.	$6\frac{7}{9} + 5\frac{5}{8}$	4.	$4\frac{5}{6} + 7\frac{8}{9} + 1\frac{2}{3}$
5.	$6 + 3\frac{11}{18} + 8\frac{7}{12}$	6.	$4\frac{5}{8} + 5\frac{5}{6} + 2\frac{3}{4}$
7.	$\frac{7}{3} + \frac{3}{2} + \frac{3}{4}$	8.	$-\frac{9}{8}+\frac{7}{4}$
9.	$1\frac{2}{3} + 3\frac{5}{6} + 2\frac{8}{9}$	10.	$8\frac{3}{7} + 4\frac{3}{5}$

11. $3\frac{11}{18} + 4 + 8\frac{1}{12}$ 12. $4\frac{1}{3} + 3\frac{1}{2} + 1$

For Problem 13-20, solve the word problem.

13. Mary makes a recipe with $1\frac{1}{2}$ teaspoons of nutmeg, $2\frac{1}{4}$ teaspoons of allspice, and $1\frac{1}{8}$ teaspoons of cloves. How many teaspoons of spice are in the recipe?

14. The recipe Mary uses will make muffins for 4 people. There are 10 people that are coming to Mary and Chris' Friends-Dinner. How many teaspoons of spice will be in the muffins so there is enough to feed all of their friends?

15. Barb has a bag that is holding $5\frac{1}{6}$ pounds of strawberries. Marybeth has a bag that is holding $\frac{26}{5}$ pounds of strawberries. How many pounds of strawberries do they have in both of their bags?

16. Melanie and Courtney are eating healthy to stay in shape for a summer bike ride. Melanie lost $8\frac{3}{4}$ pounds. Courtney lost $\frac{57}{9}$ pounds. Who lost more weight? How much more did she lose? 17. Justin ran $4\frac{5}{6}$ miles; Kofi ran $5\frac{3}{4}$ miles; Seth ran $2\frac{5}{6}$ miles; they need to run 13 miles all together for a fundraiser. Did they run enough miles?

18. Ashlyn studied for $\frac{3}{2}$ hours on Monday night, for $\frac{5}{8}$ hours on Tuesday night, and for $\frac{5}{3}$ hours onWednesday night to prepare for her final exam. The professor said she would need at least 3 hours all together to cover all the material on the exam. Did Ashlyn study enough to cover the material for her final exam?

19. Chris makes a marinade using a recipe that requires $2\frac{1}{2}$ teaspoons of basil, $1\frac{1}{4}$ teaspoons of rosemary, and $1\frac{1}{8}$ teaspoons of cloves. This amount will marinate 4 steaks. What is the total amount of teaspoons of spice Chris needs to feed four people? Use doubling and halving to find the total teaspoons of spice needed for the marinade if Tom is grilling 10 steaks.

20. It took Regina $11\frac{3}{4}$ hours to drive to Marilyn's house in Maryland, and $13\frac{7}{9}$ hours to drive back home. How many hours was the entire drive?

Section 2.9 Subtracting Mixed Numbers

Practice Problems 2.9

For Problem 1-6, subtract the mixed numbers given.

1.	$5\frac{2}{3}-2\frac{1}{6}$	2.	$7 - 3\frac{7}{12}$
3.	$7\frac{3}{8} - 4\frac{2}{11}$	4.	$8\frac{3}{4} - 6\frac{5}{9}$

5. $11\frac{1}{3} - 4\frac{1}{2}$ 6. $15\frac{7}{8} - 7\frac{2}{5}$

For Problem 7-10, solve the word problem given.

7. Jacob wrote a song that was $4\frac{7}{8}$ minutes long. After revising it, the song was only $3\frac{2}{5}$ minutes long. How much shorter was the revised song than the original?

8. Tori can stock $7\frac{1}{2}$ shelves an hour at the grocery store. Austin works at the same grocery store, but can stock $9\frac{3}{8}$ shelves an hour. How many more shelves can Austin stock then Tori in an hour?

Math with Mrs. Brown Practice Problems

9. Kayla is the Chief Financial Officer at a company and closely follows the stock price of her company and the stock price of her company's competitors. How can her knowledge of adding and subtracting fractions help her in her work? (The stock or shares in a company may be fractional shares.)

10. When might it be easier to add and subtract mixed numbers as fractions rather than convert them to decimal numbers?

Section 2.10 Multiplying Mixed Numbers

Practice Problems 2.10

For Problem 1-8, multiply the terms given.

1.	$3\frac{1}{5} \cdot 2\frac{1}{3}$	2.	$4\frac{4}{5}\cdot 5\frac{1}{4}$
3.	$7\frac{1}{2} \cdot 6\frac{1}{4}$	4.	$\frac{4}{5} \cdot 3\frac{3}{4} \cdot \frac{12}{21}$
5.	$1\frac{1}{3} \cdot 5\frac{1}{2}$	6.	$2\frac{3}{8} \cdot 5\frac{1}{2}$
7.	$1\frac{1}{4} \cdot 5\frac{1}{2}$	8.	$\frac{2}{3} \cdot 5\frac{1}{2}$

For Problem 9 and 10, solve the word problem.

9. Caelan knows his mother loves chocolate-covered cherries. Therefore, he bought her $3\frac{1}{4}$ pounds of chocolate-covered cherries on sale at the candy store. Ian drove by the same candy store on the way home, saw the deal, and bought his mother $2\frac{1}{2}$ pounds of chocolate-covered cherries. Later, Duncan walked by that same candy store, saw the deal, and-you guessed it-bought his mother $1\frac{3}{4}$ pounds of chocolate-covered cherries. Needless to say, when everyone got home, Caelan, Ian, and Duncan's mother was overjoyed to get so much candy! How many pounds of chocolate-covered cherries did she receive?

10. Micah weighs himself before each track meet to make sure he meets the pole-vault specifications for weighted poles. The previous week, he weighed in at $135\frac{1}{2}$ pounds. This week, he weighed in at $142\frac{8}{9}$ pounds. He had stopped by Caelan, Duncan, and Ian's each day and had lots of chocolate-covered cherries. How much weight did Micah gain in the week?

Section 2.11 Dividing Mixed Numbers

Practice Problems 2.11

For Problem 1-10, divide the terms given.

1.	$1\frac{3}{5} \div \frac{1}{2}$	2.	$4\frac{5}{6} \div 1\frac{1}{2}$
3.	$3\frac{1}{8} \div 2\frac{4}{7}$	4.	$4\frac{1}{5} \div 1\frac{3}{5}$
5.	$3\frac{2}{3} \div \frac{5}{6}$	6.	$1\frac{3}{8} \div 2\frac{1}{2}$
7.	$1\frac{1}{2} \div 2\frac{1}{4}$	8.	$1\frac{1}{3} \div 2\frac{2}{3}$

For Problem 9 and 10, solve the word problem.

9. The Bible teaches us to tithe at least one-tenth of our income to the work of God. It is to be our first fruits, which means we do this before we spend our income on anything else. Urriah got a job at a local plant right out of high school. When he got his first paycheck, he set aside his tithe and then put one-fifth of his paycheck into his savings. If Urriah's paycheck was \$354.00, how much did he tithe and how much did he save?

10. A local school of 450 students participated in an all-school community service project at the end of the year. One-fifth of the students volunteered to work at a homeless shelter. Two-thirds of the students volunteered to repair playground equipment at a local park. The rest of the students volunteered to paint fire hydrants for the fire department. How many students worked on each project?

	Section 2.12 Operating with Decimals			
	Practice Proble	ems 2.12		
	For Problem 1-5, perform the operation	ons to sol	ve the problem given.	
1.	0.35 + 0.25	2.	1.151 - 0.340	
3.	0.61 - 0.46	4.	139.72 + 0.08	
5.	1.024 + 0.6			
	For Problem 6 and 7, tell which	decimal	number is larger.	
6.	0.7 or 0.79	7.	3.62 or 3.602	
	For Problem 8-16, perform the ope	eration to	solve the problem.	
8.	4.21 · 10	9.	63.5 · 0.1	
10.	0.125 · 0.016	11.	0.816 + 0.35	
12.	0.999 – 0.009	13.	16.27 – 3.1	
14. (Round	381.64 ÷ 0.22 to the nearest Hundredths)	15.	0.475 ÷ 0.25	

16. 55.5 ÷ 0.5

For Problem 17-20, solve the word problem.

17. Find two numbers whose product is 14.32.

18. Find two numbers whose product is 1.432.

19. Stacy's new house has an office that is 6.24 meters long by 8.46 meters wide. She wants to buy carpet for it so she calculates the area (length multiplied by width) of the office and finds it is about 5.28 square meters. Is her measurement accurate?

20. Duffie ran a quarter of a mile in 59.4 seconds and Jake ran the same quarter of a mile n 58.024 seconds. How much faster than Duffie did Jake run the quarter of a mile? How much slower than Jake did Duffie run the quarter of a mile?

Section 2.13 Conversions in the Metric System

Practice Problems 2.13

For Problem 1-20, make the necessary conversions to solve the problem.

1.	8,000 m. = km.	2.	7.5 g. = cg.
3.	3.900 dl. = hl.	4.	10 kg. = g.
5.	0.14 m. = cm.	6.	5 g. = mg.
7.	100 L. = ml.	8.	4,945 m. = km.
9.	2.1 hg. = dg.	10.	7 L. = ml.
11.	0.26 ml. = cl.	12.	40 hg. = kg.
13.	9,600 m. = km.	14.	210 g. = dg.
15.	6 g. = cg.	16.	1.75 mm. = cm.
17.	1.314 dm. = cm.	18.	200 cm. = mm.
10			

19. 432 km. = _____ dam.

20. Leann, Brooke, and Chloe make potpourri gift bags for shut-ins. Leann buys 10.120 mg. of spices; Brooke buys 9.216 mg. of dried herbs; Chloe buys 7.113 mg. of scented fruit. How many grams of potpourri will those make in total?

Section 2.14 Module Review

For Problem 1-10, use the given information and recipe to solve the problem.

Emmy volunteers to make biscuits for the church dinner. To feed all the people that will attend she needs to make $3\frac{1}{2}$ times the recipe below.

Homemade Biscuits

	- 2 cups all-purpose flour
	- $1\frac{1}{2}$ teaspoons sugar
-	$1\frac{3}{8}$ tablespoons baking powder
	- 1 teaspoon salt
-	$1\frac{1}{3}$ tablespoons butter cubed
	$-\frac{3}{4}$ cup milk

How much of each of the following ingredients does Emmy need to make everyone happy?

1.	Milk	2.	Butter
3.	Sugar	4.	Daling Doudor
5.	Sugar	4.	Baking Powder
5.	Salt	6.	Flour

7. If the recipe makes $2\frac{1}{2}$ dozen biscuits (12 biscuits is one-dozen), how many dozen biscuits will Emmy bake?

8. If 72 people attend the dinner and each eat 1 biscuit, how many will be left over?

9. If River cuts the original biscuit recipe in half to feed her family, how many dozen biscuits will she make? How many individual biscuits will that be? The original recipe makes $2\frac{1}{2}$ dozen biscuits.

10. How much of each ingredient does River need for the recipe to feed her family?

Section 2.15 Module Test

For Problem 1-10, use the given information and recipe to solve the problem.

Angelica bakes bread to take to a homeless shelter. She needs to make $2\frac{1}{2}$ times the recipe to feed the number of homeless people who come to Saturday morning breakfast.

Applesauce Bread

 $- \frac{1}{2} \operatorname{cup} \operatorname{butter}$ $- 1 \operatorname{cup} \operatorname{sugar}$ $- 1 \operatorname{egg}$ $- 1\frac{1}{4} \operatorname{cup} \operatorname{applesauce}$ $- 1\frac{1}{2} \operatorname{cup} \operatorname{flour}$ - $1\frac{1}{2}$ teaspoon baking soda - 1 teaspoon cinnamon - $\frac{3}{4}$ teaspoon nutmeg - $\frac{1}{2}$ teaspoon salt - $\frac{1}{4}$ teaspoon ground cloves $-\frac{2}{3}$ cup raisins - $\frac{2}{3}$ cup chopped nuts 1 cup chopped apples -

How much of each of the following ingredients does Angelica need to have to make enough bread for everyone on Saturday?

1.	Butter	2.	Applesauce
3.	Flour	4.	Nutmeg
5.	Apples	6.	Ground cloves

Apples

7. How many raisins and chopped nuts does Angelica need to make $2\frac{1}{2}$ times the original recipe?

8. If one loaf feeds 13 people, how many people will $2\frac{1}{2}$ loaves of bread make?

9. Telek wants to double the number of raisins and half the number of nuts for his applesauce bread. How much of each ingredient will he use for one loaf?

10. Telek makes $3\frac{1}{2}$ loaves of bread for his family reunion. Approximately how many people will get a piece of applesauce bread?

If you would like to make this recipe on your own, follow the instructions below:

- Cream the butter and sugar; add eggs and applesauce, and mix well
- Gradually add the dry ingredients to the wet ingredients until they are just combined
 - Fold in raisins, apples, and nuts
 - Pour all ingredients into a greased loaf pan
- Bake the bread at 350° for about fifty minutes until a knife can be inserted and come out clean
 - Cool the loaf for ten minutes and remove from pan and put the bread onto a wire rack

- ENJOY!