

Student Name: _____ **Summer Math for Students Entering Grade 6** **School:** _____

Directions: Circle the number of the problems that you completed and return them to your homeroom teacher on the first week of school.

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1. Six friends have 4 sandwiches to share. What fraction of the sandwiches will each person get? Draw a fraction model to determine and show your answer. B) What is another fraction that can represent the same amount?
2. What is the perimeter of your room measured in feet and inches? B) What is the perimeter of your room measured in meters and centimeters?
3. Consider the number 360. Which numbers between 1 and 12 is 360 divisible by (i.e., how many of these numbers can 360 be divided by without a remainder)? For each number 1-12, show how you know. For example, 360 is divisible by 4 because $4 \times 90 = 360$ or $360 \div 4 = 90$.
4. Write at least 10 number sentences that equal 50. Use all four operations (+, -, \times , and \div). Include more than one operation in some number sentences. Include fractions or decimals in a couple of number sentences.
5. A farm has cows and ducks. Between them, these animals have 78 feet and 27 heads. How many of each animal are there? Show how you know.
6. Find three cardboard boxes. A) For each, measure the dimensions (i.e., length, width, and height) in inches and centimeters. (Round each dimension to the nearest whole inch or centimeter.) Then find the volume for each in cubic inches and cubic centimeters.
7. Create a multi-step story problem that uses more than one operation (i.e., addition, subtraction, multiplication, and/or division). Have a friend solve it.
8. Follow a recipe and make a dish or dessert for your family. With an adult, shop for the needed ingredients and make the food. Write about how you used math throughout this experience.
9. Make the number 144 by: A) Multiplying two numbers; B) Dividing two numbers; C) Adding two odd numbers; and D) Subtracting two even numbers.
10. A) Complete the following multiplication problems: 392×46 , 392×4.6 , and $392 \times .46$. B) How are the answers related? C) Why is that?
11. The thickness of a piece of paper is 0.004 of an inch. A Red Sox player's batting average of 0.337 represents the number of hits divided by the number of at bats. List and explain five other real-world uses of decimals.
12. A) A construction team uses 184 sheets of plywood for each house it builds. The team will build 12 houses this year. What is the total number of sheets of plywood the team will use to build all 12 houses? B) If the team used 4,416 sheets of plywood last year, how many houses did they build? How do you know?
13. Draw fraction models (e.g., a fraction bar divided into equal parts, with some shaded) to show that $\frac{3}{4}$, $\frac{6}{8}$, and $\frac{9}{12}$ are equivalent fractions.
14. A) Draw or sketch the face of an animal or a human. B) List all the ways that a face can seem symmetrical.
15. A) I am a number less than 50. When divided by 5, my remainder is 4. Who am I? B) What are the other possible answers?
16. A) How many minutes are in one hour? B) How many seconds are in one hour? C) How many minutes are in one day? D) How many seconds are in one day? E) How many minutes and seconds are in one week?
17. As best you can, draw a rectangular prism. Label its dimensions (i.e., length, width, and height) and find the volume. Will your units (i.e., the label) be cubic inches or cubic centimeters?
18. A) Juan and Jamal buy a pizza that is cut into 8 equal slices. Juan eats $\frac{1}{8}$ of the pizza, and Jamal eats $\frac{1}{4}$ of the pizza. What fraction of the pizza is left? B) If $\frac{3}{8}$ of a pizza is left over every day for 4 days, how much pizza would be left over overall? Represent that amount as a mixed number (i.e., having a whole number and a fraction part). Can the fraction be simplified?
19. If you spend \$100.00 a day, how many days will it take to spend a million dollars? B) How many years is that?
20. What is the volume of a box with the following dimensions: a height of 4m, a width of 3m, and a length of 5m? B) What are the dimensions of a box with twice the volume? C) What are the dimensions of a box with three times the volume? D) What are the dimensions of a box with half the volume?

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21. There are 120 students in the sixth grade. $\frac{2}{3}$ of the students take the bus home, and $\frac{1}{6}$ get a ride from their families. The rest walk home. How many sixth-graders walk home?
22. A scale rounds the weights of objects to the nearest tenth of a pound. What amounts would it round the following weights to?
A) 53.864 pounds _____
B) 14.62 pounds _____
C) 608.97 pounds _____
23. Make a geometry dictionary with entries on obtuse, acute, right, and straight angles as well as isosceles, equilateral, obtuse, acute, and right triangles. Include illustrations of each of these.
24. Make up a story problem involving division. Have a friend or family member solve it.
25. 232 children and 45 adults are going on a field trip. Each bus can seat 40 people. A) How many buses will they need to take everyone? B) How many empty seats will there be?
26. Write a paragraph about how you think the President of the United States would use math in his or her job.
27. When an airplane is at an altitude of six miles (i.e., six miles above sea level), it is 350 miles from the airport. At an altitude of five miles, it's 275 miles from the airport. At an altitude of 4 miles, it's 200 miles from the airport. If the plane continues in this pattern, what will be its altitude when it's 50 miles from the airport?
28. A) Use a ruler to make a number line between 0 and 1 that includes all the tenths (i.e., from 0.1 up to 0.9), and includes 0.25, 0.5, and 0.75. (You may want to start by making a mark on your number line at every inch from 0 to 10. The first mark would be zero and the last would be 1, and the numbers in between would be the tenths.) B) Do the same thing to make a number line between 2 and 3 and include the tenths from 2.1 to 2.9, as well as 2.25, 2.5, and 2.75.
29. Ask 20 people their favorite color and make a bar graph to represent the results. You may want to limit the number of colors and use simple colors like red, yellow, purple, etc.
30. At a laundromat, there are 16 washing machines in a single row with no spaces between them. If each washing machine is 2 feet and 5 inches across, what is the total length of the 16 washing machines? (Remember to convert as many extra inches into feet as you can in your final answer.)
31. A) Write 347,392 in expanded form. B) Write 6,092.85 in expanded form.
32. Jessenia is 12, and Jayda is 13. A) What is the product (i.e., the answer when multiplying) of their ages? B) In 25 years, what will be the product of their ages?
33. The Yummy Chocolate Company sold $2\frac{3}{4}$ pounds of milk chocolate on Saturday and $2\frac{7}{8}$ pounds of milk chocolate on Sunday. How much milk chocolate did they sell on the two days? (Remember to not leave any improper fractions in your answer.)
34. Make the number 81 by: A) Multiplying two numbers; B) Dividing two numbers; and C) Adding three odd numbers. D) Can you make 81 by adding or subtracting only even numbers? Explain.
35. Carlos was trying to break his record for how quickly he could clean his room. His record was $15\frac{1}{2}$ minutes, and he broke this record by 42 seconds. How long did it take him?
36. Aaliyah has between 20 and 30 baseball cards in a box. If she counts them out 2 at a time, she has one left over. If she counts them out 5 at a time, she has four left over. How many cards are in the box? Explain how you know.
37. A rectangular prism has a volume of 2,520 cubic centimeters. The length of the prism is 12 cm, and the height is 15 cm. What is the width?
38. Four boys are playing video games. If every boy plays a video game match against each of the other boys, how many matches will be played overall?
39. An inch is 2.54 centimeters, or 2.54 cm. A) How many centimeters would 5 inches be? B) How many centimeters would 10 inches be? C) How many centimeters would 15 inches be?
40. There are nine children at a party. Each boy had 6 cookies and each girl had 5 cookies. A total of 50 cookies were eaten. How many boys are at the party?