

Name _____

Word Problems Involving Highest Common Factor And Lowest Common Multiple

Read each question carefully and think about what the question is asking.

Find the prime factors for each number

Draw a Venn diagram

Remember $A \cap B = \text{HCF}$ $A \cup B = \text{LCM}$

1. Kamal has 6 cans of regular soda and 15 cans of diet soda. He wants to create some identical refreshment tables that will operate during the American football game. He also doesn't want to have any sodas left over. What is the greatest number of refreshment tables that Kamal can stock?
2. At a family reunion, each of Sana's aunts and uncles is getting photographed once. The aunts are taking pictures in groups of 5 and the uncles are taking pictures in groups of 10. If Sana has the same total number of aunts and uncles, what is the minimum number of aunts that Sana must have?
3. Sapphire and Abe are shelving books at a public library. Sapphire shelves 5 books at a time, whereas Abe shelves 6 at a time. If they end up shelving the same number of books, what is the smallest number of books each could have shelved?
4. For a dinner party, Abraham is creating individual servings of starters. He has 9 carrot sticks and 18 celery sticks. If he wants each serving to be identical, with no food left over, what is the greatest number of servings Abraham can create?
5. To encourage public transportation, Russom wants to give some friends envelopes with bus tickets and subway tickets in them. If he has 18 bus tickets and 12 subway tickets to split equally among the envelopes, and wants no tickets left over, what is the greatest number of envelopes Russom can make?
6. Miley and Cole ended up making the same number of biscuits for a bake sale at school, even though Miley made them in batches of 7 biscuits and Cole made them in batches of 11 biscuits. What is the smallest number of biscuits each must have baked?
7. Veronica is making emergency-preparedness kits to share with friends. She has 20 bottles of water and 12 cans of food, which she would like to distribute equally among the kits, with nothing left over. What is the greatest number of kits Veronica can make?
8. The soccer team and the American football team are sharing the field for their practices today. The soccer team meets for practice every 2 days, and the American football team meets every 4 days. How many days from now will they have to share the field again?
9. Colton has 16 blue marbles and 8 white ones. If he wants to place them in identical groups without any marbles left over, what is the greatest number of groups Colton can make?
10. This afternoon, Sara noticed that the number of the page assigned for homework is divisible by both 12 and 2. What is the smallest possible page number that could have been assigned?

11. Over the next two days, Clinton Employment Agency is interviewing clients who wish to find jobs. On the first day, the agency plans to interview clients in groups of 2. On the second day, the agency will interview clients in groups of 4. If the employment agency will interview the same number of clients on each day, what is the smallest number of clients that could be interviewed each day?
12. Egbert is making trail mix out of 18 bags of nuts and 9 bags of dried fruit. He wants each new portion of trail mix to be identical, containing the same combination of bags of nuts and bags of dried fruit, with no bags left over. What is the greatest number of portions of trail mix Egbert can make?
13. Pencils come in packages of 10. Erasers come in packages of 12. Phillip wants to purchase the smallest number of pencils and erasers so that he will have exactly 1 eraser per pencil. How many packages of pencils and erasers should Phillip buy?
- 4 packages of pencils and 3 packages of erasers
 - 5 packages of pencils and 4 packages of erasers
 - 6 packages of pencils and 5 packages of erasers
 - 12 packages of pencils and 10 packages of erasers
14. Kiara baked 30 oatmeal cookies and 48 chocolate chip cookies to package in plastic containers for her teacher friends at school. She wants to divide the cookies into identical containers so that each container has the same number of each kind of cookie. If she wants each container to have the greatest number of cookies possible, how many plastic containers does she need?
15. Boxes that are 12 inches tall are being stacked next to boxes that are 18 inches tall. What is the shortest height at which the two stacks will be the same height?
16. Beginning at 8:30 A.M., tours of the National Capitol and the White House begin at a tour agency. Tours for the National Capitol leave every 15 minutes. Tours for the White House leave every 20 minutes. How often do the tours leave at the same time?
- Every 15 minutes
 - Every 30 minutes
 - Every 45 minutes
 - Every 60 minutes
17. Explain the difference between listing the factors of a number and listing the multiples of a number.
18. Two neon lights are turned on at the same time. One blinks every 4 seconds and the other blinks every 6 seconds. In 60 seconds, how many times will they blink at the same time?
19. The table shows the number of students in the school choir. The choir teacher plans to arrange the students in equal rows. Only girls or boys will be in each row. What is the greatest number of students that could be in each row?

Students	Number
Girls	48
Boys	64

- A. 16 B. 12 C. 8 D. 4

20. At a display booth at an amusement park, every visitor gets a gift bag. Some of the bags have items in them as shown in this table.

i. Items in the Gift Bags

Items	Bags
Hat	Every 2 nd visitor
T-shirt	Every 7 th visitor
Backpack	Every 10 th visitor

How often will a bag contain all three items?

- A. Every 14 bags B. Every 19 bags C. Every 70 bags D. Every 140 bags

21. Bridget has swimming lessons every fifth day and diving lessons every third day. If she had a swimming lesson and a diving lesson on May 5, when will be the next date on which she has both swimming and diving lessons?

22. Hot dogs come in packages of 8. Hot dog buns come in packages of 12. If Grace wants to have enough to serve 24 people and have none left over, how many packages of hot dogs and hot dog buns should she purchase?

23. There are 40 girls and 32 boys who want to participate in 6th grade intramurals. If each team must have the same number of girls and the same number of boys,

- I. What is the greatest number of teams that can participate in intramurals?
- II. How many girls and boys will be on each team?

24. Three pigs entered a race around a track. Piggly takes 6 minutes to run one lap. Piglet takes 3 minutes to run one lap and it takes Wiggly 5 minutes to run one lap. If all three pigs begin the race at the same time, how many minutes will it take for all three pigs to be at the starting point again?

25. Shannon is making identical balloon arrangements for a party. She has 32 maroon balloons, 24 white balloons, and 16 orange balloons. She wants each arrangement to have the same number of each color. What is the greatest number of arrangements that she can make if every balloon is used?