

LCM and GCF Practice Problems

For all problems, you are expected to use the methods we have used in class, and you are expected to show your work.

Assume all letters represent counting numbers.

1. Name four pairs of numbers that have a GCF of 12.
2. Name four pairs of numbers that have a GCF of 20.
3. Name four pairs of numbers that have an LCM of 100.
4. Name four pairs of numbers that have an LCM of 210.
5. What pairs of numbers have a GCF of 5 and an LCM of 125? (List all of the possibilities.)
6. What pairs of numbers have a GCF of 15 and an LCM of 45? (List all of the possibilities.)
7. For the number $m = 2 \cdot 5 \cdot 7 \cdot 7 \cdot p$ (where p is a prime number greater than 7), indicate whether the following statements are true or false:
 - a) m is odd
 - b) the last digit (on the right) of the number m is a 5
 - c) $14|m$
 - d) $4|m$
 - e) m is a multiple of 490
 - f) m is divisible by 25
8. If $\text{GCF}(x, 42) = 6$ and $\text{LCM}(x, 42) = 252$, find x .
9. If $\text{GCF}(x, 85) = 5$ and $\text{LCM}(x, 85) = 850$, find x .
10. If $\text{GCF}(x, 18) = 2$ and $\text{LCM}(x, 18) = 504$, find x .
11. State whether each statement is true or false:
 - a) If $\text{LCM}(x, y) = 16$, then $y|16$.
 - b) If a and b are relatively prime, then $\text{GCF}(a, b) = ab$.

- c) If $\text{GCF}(m, n) = 6$, then $n|6$.
- d) If $4|n$ and $4|m$ and $4|w$, then $2|(n + m + w)$.
12. Evaluate:
- a) $\text{GCF}(x, 3x) =$
- b) $\text{LCM}(b, 4b) =$
- c) $\text{GCF}(a, 4a^2) =$
- d) $\text{LCM}(n, 1) =$
13. Name two numbers between 50 and 100 that have a GCF of 9.
14. Name all the possible pairs of numbers that have an LCM of 110.
15. Name all the possible pairs of numbers that have an LCM of 121.
16. If the $\text{GCF}(x, 32) = 16$ and the $\text{LCM}(x, 32) = 96$, find x .
17. If the $\text{GCF}(m, 48) = 3$ and $\text{LCM}(m, 48) = 432$, find m .
18. If the GCF of two numbers is 8 and their LCM is 320, what could the numbers be? (List all the possibilities.)
19. State whether each statement is true or false:
- a) If $6|n$ and $4|n$, then $24|n$.
- b) If $\text{LCM}(x, y) = 16$, then $y|16$.
- c) If a and b are relatively prime, then $\text{GCF}(a, b) = ab$.
- d) If $2|m$ and $3|m$, then $5|m$.
- e) If $\text{GCF}(m, n) = 6$, then $n|6$.
- f) If $4|n$ and $4|m$ and $4|w$, then $2|(n + m + w)$.
20. If $n = 2 \cdot 3 \cdot 3 \cdot 7 \cdot p$, where p is a prime number greater than 23, then
- a) The last digit of n is a zero.
- b) $9|n$
- c) n is a multiple of 49

d) n is a factor of 6.

21. Evaluate:

a) $\text{GCF}(x, 3x) =$

b) $\text{LCM}(b, 4b) =$

c) $\text{GCF}(a, 4a^2) =$

d) $\text{LCM}(n, 1) =$

22. Find the following answers, using the technique we learned in class:

a) $\text{GCF}(750, 1950)$

b) $\text{GCF}(1650, 330)$

c) $\text{GCF}(315, 490)$

d) $\text{GCF}(70, 99)$

23. Name three pairs of numbers between 40 and 120 that have a GCF of 9.

24. Name three pairs of numbers between 10 and 150 that have an LCM of 144.

25. Name three pairs of numbers that are not divisible by 7 and that have a GCF of 4.

26. Name three pairs of odd numbers that have a GCF of 15.

27. Find two numbers that have a GCF of 25 and an LCM of 300. List all the possibilities.

28. Find two numbers that have a GCF of 12 and an LCM of 120. List all the possibilities.

29. Find two numbers that have a GCF of 20 and an LCM of 280. List all the possibilities.

30. If $\text{GCF}(x, 81) = 9$ and $\text{LCM}(x, 81) = 567$, what is x ?

31. If $\text{GCF}(x, 70) = 14$ and $\text{LCM}(x, 70) = 140$, what is x ?

32. If $\text{GCF}(x, 42) = 6$ and $\text{LCM}(x, 42) = 252$, what is x ?

33. $\text{GCF}(330, 1050)$

34. $\text{LCM}(525, 693)$

35. $\text{GCF}(12, 20)$

36. LCM (12, 36)

37. GCF (100, 80)

38. GCF (25, 75)

39. LCM (11, 23)

40. GCF (31, 43)

41. If $8|m$, what else must divide m ?

42. True or false: If $3|x$ and $2|x$, then $6|x$.

43. True or false: If $4|d$ and $6|d$, then $24|d$.

44. If a and b are relatively prime, what is $\text{GCF}(a, b)$?

45. If a and b are relatively prime, what is $\text{LCM}(a, b)$?

46. If $a|b$, what is $\text{GCF}(a, b)$?

47. If $a|b$, what is $\text{LCM}(a, b)$?

1. Indicate whether each statement is true or false:

- a) 6 is a factor of 12.
- b) Any multiple of 9 will also be a multiple of 12.
- c) If a number is made up of 8's, it is also made up of 4's.
- d) Any counting number that is not prime is composite.
- e) 978,302,198,624 is divisible by 8.

1. List all the factors of 45.

2. Name two numbers, both above 20, that are relatively prime.

3. Indicate whether each statement is true or false:

- a) Two different prime numbers are relatively prime.
- b) Assume $a \neq b$. If $a|b$ and $a \neq 1$, then b must be composite.
- c) Any counting number which is not prime must be composite.

4. Find the smallest composite number which is not divisible by 2, 3, 5, or 7.

5. Name two different numbers, both between 20 and 100, that have a GCF of 12.

6. Name two different numbers that have an LCM of 42.
7. Find, using the technique we used in class, $\text{LCM}(12, 15)$.
8. Find, using the technique we used in class, $\text{GCF}(350, 630)$.
9. Name four pairs of numbers that have an LCM of 100.
10. What pairs of numbers have a GCF of 5 and an LCM of 125? (List all of the possibilities.)
11. If $\text{GCF}(x, 42) = 6$ and $\text{LCM}(x, 42) = 252$, find x .
12. If $\text{GCF}(x, 85) = 5$ and $\text{LCM}(x, 85) = 850$, find x .
13. If $\text{GCF}(x, 18) = 2$ and $\text{LCM}(x, 18) = 504$, find x .
14. State whether each statement is true or false:
 - a) If $\text{LCM}(x, y) = 16$, then y is a factor of 16.
 - b) If a and b are relatively prime, then $\text{GCF}(a, b) = ab$.
 - d) If $\text{GCF}(m, n) = 6$, then n is a factor of 6.
15. Name two numbers between 200 and 1000 that have a GCF of 9.
16. Evaluate:
 - a) $\text{GCF}(x, 3x) =$
 - b) $\text{LCM}(b, 4b) =$
 - c) $\text{GCF}(a, 4a^2) =$
 - d) $\text{LCM}(n, 1) =$
17. If the $\text{GCF}(x, 32) = 16$ and the $\text{LCM}(x, 32) = 96$, find x .
18. If the $\text{GCF}(m, 48) = 3$ and $\text{LCM}(m, 48) = 432$, find m .
19. If the GCF of two numbers is 8 and their LCM is 320, what could the numbers be? (List all the possibilities.)
20. Name three pairs of numbers x and y , so that $x \neq y$, neither x nor y is a multiple of 7, and $\text{GCF}(x, y) = 4$.
21. Name three pairs of different odd numbers that have a GCF of 15.

22. Find two numbers that have a GCF of 20 and an LCM of 280. List all the possibilities.
23. Find two numbers m and n so that m and n are both greater than 100, $m \neq n$, and $\text{GCF}(m, n) = 21$.
24. Find 3 different pairs of numbers x and y , so that $x \neq y$ and $\text{LCM}(x, y) = 300$.
25. Find all possible pairs of numbers that have an LCM of 121.
26. Find a pair of numbers that has a GCF of 12 and an LCM of 420.
27. Assume a and b are different counting numbers. Indicate whether each statement is true or false:
- a) If a and b are relatively prime, $\text{GCF}(a, b) = b$.
 - b) If a is a factor of b , $\text{LCM}(a, b) = a$.
 - c) $\text{GCF}(a, 1) = a$.
 - d) If a and b are both multiples of 5, their GCF cannot be 1.
 - e) No two odd numbers are relatively prime.
28. Evaluate, assuming that a is a counting number:
- a) $\text{GCF}(3a, a) =$
 - b) $\text{LCM}(a, 1) =$
 - c) $\text{LCM}(1, a, 3a) =$