

Grade 6 · Greatest Common Factor and Least Common Multiple · Quiz

Common Core 6.NS.B.4 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This 10-question multiple-choice quiz checks factor and multiple skills from Common Core 6.NS.B.4. Choose one answer for each question. The explanation after each question shows the correct method and the common mix-up between GCF and LCM.

Grade 6 Common Core: 6.NS.B.4

Questions

Question 1

What is the greatest common factor of 24 and 36?

- A. 6
- B. 24
- C. 12
- D. 72

Question 2

What is the least common multiple of 6 and 9?

- A. 18
- B. 3
- C. 36
- D. 54

Question 3

What is the prime factorization of 72?

- A. $2^3 \times 3^2$
- B. $2^2 \times 3^3$
- C. $2^3 \times 9$
- D. 3×24

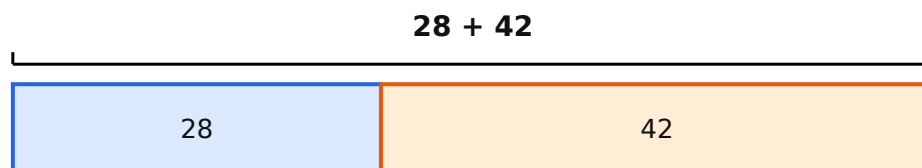
Question 4

Which number is prime?

- A. 27
- B. 29
- C. 33
- D. 39

Question 5

Which expression writes $28+42$ as a product using the greatest common factor?



The two parts of the sum.

- A. $7(4+6)$
- B. $2(14+21)$
- C. $4(7+10)$
- D. $14(2+3)$

Question 6

Ethan has 30 pencils and 45 erasers. He makes identical kits with nothing left over. What is the greatest number of kits?

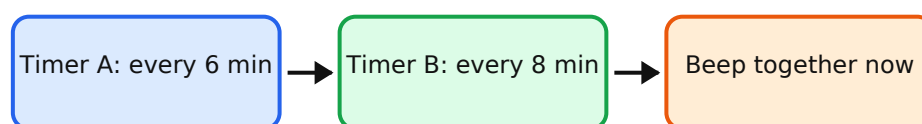


Items to split into kits.

- A. 5
- B. 3
- C. 15
- D. 90

Question 7

Two timers beep every 6 minutes and every 8 minutes. They beep together now. In how many minutes will they next beep together?



Two beeping cycles.

- A. 48
- B. 24
- C. 14
- D. 12

Question 8

What is the greatest common factor of 40 and 100?

- A. 10
- B. 200
- C. 4
- D. 20

Question 9

How many factors does 20 have?

- A. 5
- B. 6
- C. 4
- D. 10

Question 10

What is the least common multiple of 7 and 11?

- A. 77
- B. 18
- C. 1
- D. 11

Answer key

1. **C** - $24 = 2^3 \times 3$ and $36 = 2^2 \times 3^2$, so the GCF is $2^2 \times 3 = 12$. 6 is a common factor but not the greatest, and 72 is the LCM.
2. **A** - Multiples of 9 are 9, 18. Since $6 \times 3 = 18$, the LCM is 18. 3 is the GCF, and 36 and 54 are common multiples that are not the least.
3. **A** - $72 = 8 \times 9 = 2^3 \times 3^2$. The other products either have the wrong exponents (that gives 108) or contain factors such as 9 and 24 that are not prime.
4. **B** - 29 has only the factors 1 and 29. $27 = 3^3$, $33 = 3 \times 11$, and $39 = 3 \times 13$ are all divisible by 3.
5. **D** - The GCF of 28 and 42 is 14, and $14(2+3) = 70$. $7(4+6)$ and $2(14+21)$ are also equal to 70 but use a common factor that is not the greatest; $4(7+10) = 68$ is not equal to 70.
6. **C** - The number of kits is the GCF of 30 and 45, which is 15. Each kit has 2 pencils and 3 erasers. 90 is the LCM, not a number of kits.
7. **B** - The LCM of 6 and 8 is 24. 48 is a common multiple but not the least, and 12 is not a multiple of 8.
8. **D** - $40 = 2^3 \times 5$ and $100 = 2^2 \times 5^2$, so the GCF is $2^2 \times 5 = 20$. 10 is a smaller common factor, and 200 is the LCM.
9. **B** - The factors of 20 are 1, 2, 4, 5, 10, and 20, which is 6 factors. Counting only the prime factors or stopping early gives a smaller count.
10. **A** - 7 and 11 share no factors besides 1, so their LCM is their product, $7 \times 11 = 77$. 18 is the sum, and 1 is the GCF.

Remember:

- A prime number has exactly two factors: 1 and itself.
- GCF: multiply the prime factors that both numbers share.
- LCM: list multiples of the larger number until the smaller number divides one.
- Use the GCF to split items into equal groups; use the LCM for repeating cycles.
- A sum can be factored with the GCF: $36+8 = 4(9+2)$.