

Grade 6 · Greatest Common Factor and Least Common Multiple · Test Answer Key

Common Core 6.NS.B.4 · mathovore.fr

This answer key shows the full solution for each test question and explains how the 20 points are awarded. Partial credit is given for a valid method with one arithmetic slip, such as a missing factor in a list.

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

Question 1: List factors (2 points)

a) 1×28 , 2×14 , 4×7 : **1, 2, 4, 7, 14, 28.**

b) 1×45 , 3×15 , 5×9 : **1, 3, 5, 9, 15, 45.**

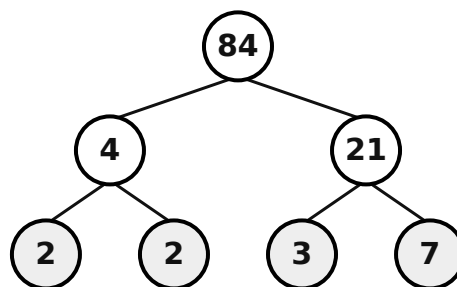
Scoring: 1 point for each complete and correct list. Deduct the point if a factor is missing or an extra number is listed.

Question 2: Prime factorizations (2 points)

a) $84 = 4 \times 21 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7.$

b) $90 = 9 \times 10 = 3 \times 3 \times 2 \times 5 = 2 \times 3^2 \times 5.$

Scoring: 1 point for each correct factorization with prime factors only.



$$84 = 2 \times 2 \times 3 \times 7$$

Question 3: Greatest common factors (2 points)

a) $30 = 2 \times 3 \times 5$, $45 = 3^2 \times 5$. Shared: $3 \times 5 = \mathbf{15}.$

b) $64 = 2^6$, $96 = 2^5 \times 3$. Shared: $2^5 = \mathbf{32}$.

Scoring: 1 point for each correct GCF.

Question 4: Least common multiples (2 points)

a) Multiples of 10: 10, 20, 30, 40. $8 \times 5 = 40$. LCM **40**.

b) Multiples of 9: 9, 18. $6 \times 3 = 18$. LCM **18**.

Scoring: 1 point for each correct LCM.

Question 5: Rewrite sums as products (2 points)

a) GCF of 40 and 24 is 8. $40 \div 8 = 5$, $24 \div 8 = 3$. $8(5+3)$. Check: $64 = 8 \times 8$.

b) GCF of 63 and 99 is 9. $63 \div 9 = 7$, $99 \div 9 = 11$. $9(7+11)$. Check: $162 = 9 \times 18$.

Scoring: 1 point for each product that uses the GCF. Using a smaller common factor earns no point.

Question 6: Snack bags (3 points)

a) The GCF of 36 and 54 is $2 \times 3^2 = 18$. **18 bags**.

b) $36 \div 18 = 2$ granola bars and $54 \div 18 = 3$ juice boxes. **2 and 3**.

c) $36 + 54 = 18(2+3)$. Check: $90 = 18 \times 5$.

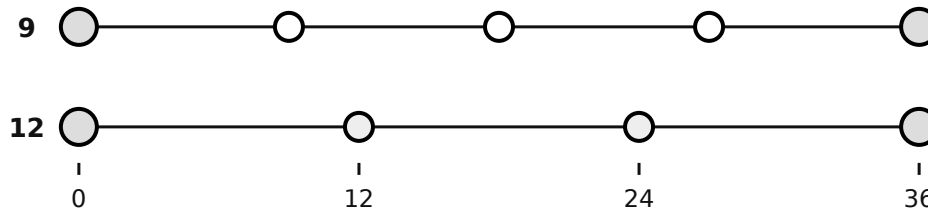
Scoring: 1 point for each part.

Question 7: Flashing lights (3 points)

a) Multiples of 12: 12, 24, 36. $9 \times 4 = 36$. The LCM is **36 seconds**.

b) $36 \div 12 = \mathbf{3}$ flashes.

Scoring: part a, 1 point for a valid method (listing multiples or prime factors) and 1 point for 36; 1 point for part b.



Flashes first meet at 36 seconds.

Question 8: Find the error (2 points)

54 is larger than both 18 and 27, but a factor of a number can never be larger than the number. Noah found the least common multiple ($18 \times 3 = 54$ and $27 \times 2 = 54$) instead of the GCF.

$18 = 2 \times 3^2$ and $27 = 3^3$. Shared: $3^2 = 9$.

The GCF is 9.

Scoring: 1 point for explaining that a factor cannot exceed the number or that 54 is the LCM; 1 point for 9.

Question 9: Prime or not (2 points)

$51 = 3 \times 17$, so 51 has factors 1, 3, 17, and 51. A prime number has exactly two factors, so 51 is not prime. A quick test: the digits add to $5 + 1 = 6$, which is divisible by 3.

Mei is not correct.

Scoring: 1 point for a factor pair (3 and 17) or a divisibility test; 1 point for the correct conclusion.

Total
20 points