

Grade 6 - Greatest Common Factor and Least Common Multiple - Answer Key

Common Core 6.NS.B.4 · maths-pdf.fr/en/

Check each GCF and LCM answer here. The solutions list the factors or multiples, show the prime factorizations when they are used, and give the final answer in bold. Factor trees and number lines are included for several problems.

Grade 6 · Common Core State Standards: **6.NS.B.4**

Exercise 1 - List the factors

Test whole numbers that divide 24 with no remainder: 1, 2, 3, 4, 6, 8, 12, 24.

Factor pairs: 1×24 , 2×12 , 3×8 , 4×6 .

1, 2, 3, 4, 6, 8, 12, 24

Exercise 2 - GCF of 16 and 40

Factors of 16: 1, 2, 4, 8, 16.

Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40.

Common factors: 1, 2, 4, 8. The greatest is 8.

8

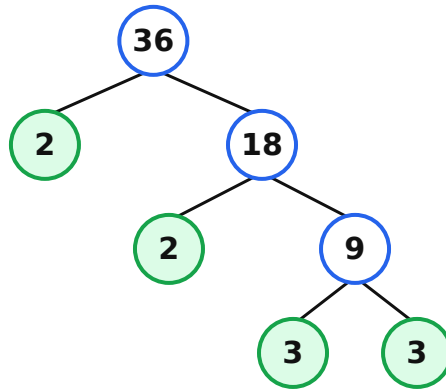
Exercise 3 - GCF of 24 and 36

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24.

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36.

Common factors: 1, 2, 3, 4, 6, 12. The greatest is 12.

12



Prime factors of 36: the shared 2, 2, and 3 multiply to 12.

Exercise 4 - GCF of 45 and 60

Factors of 45: 1, 3, 5, 9, 15, 45.

Factors of 60: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60.

Common factors: 1, 3, 5, 15. The greatest is 15.

15

Exercise 5 - GCF of 28 and 70

Factors of 28: 1, 2, 4, 7, 14, 28.

Factors of 70: 1, 2, 5, 7, 10, 14, 35, 70.

Common factors: 1, 2, 7, 14. The greatest is 14.

14

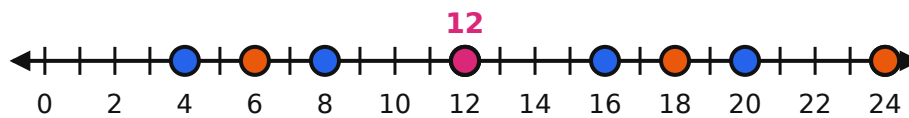
Exercise 6 - LCM of 4 and 6

Multiples of 4: 4, 8, 12, 16.

Multiples of 6: 6, 12, 18.

The first multiple on both lists is 12.

12



The first common multiple is 12.

Exercise 7 - LCM of 10 and 15

Multiples of 10: 10, 20, 30, 40.

Multiples of 15: 15, 30, 45.

The first multiple on both lists is 30.

30

Exercise 8 - LCM of 14 and 21

Multiples of 14: 14, 28, 42, 56.

Multiples of 21: 21, 42, 63.

The first multiple on both lists is 42.

42

Exercise 9 - LCM of 5 and 7

5 and 7 share no factor other than 1, so the LCM is their product: $5 \times 7 = 35$.

35

Exercise 10 - Prime factorization

The prime factors of 60 are 2, 2, 3, and 5.

$$60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$$

$$2^2 \times 3 \times 5$$

Exercise 11 - GCF with prime factors

$$84 = 2^2 \times 3 \times 7 \text{ and } 126 = 2 \times 3^2 \times 7.$$

Common prime factors with the least exponent: 2, 3, and 7.

$$2 \times 3 \times 7 = 42$$

42

Exercise 12 - LCM with prime factors

$$18 = 2 \times 3^2 \text{ and } 30 = 2 \times 3 \times 5.$$

Use each prime with its greatest exponent: $2 \times 3^2 \times 5 = 90$.

90

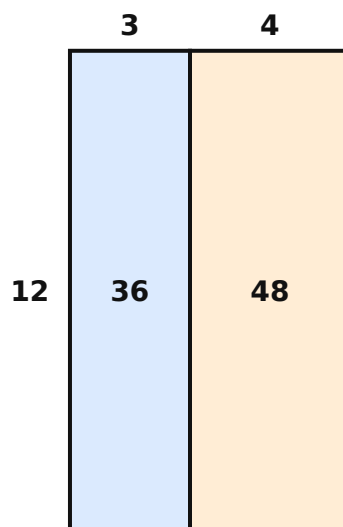
Exercise 13 - Distributive property

The GCF of 36 and 48 is 12.

$$36 = 12 \times 3 \text{ and } 48 = 12 \times 4.$$

$$36 + 48 = 12(3 + 4).$$

$$12(3 + 4)$$



The areas 36 and 48 add to $12 \times 7 = 84$.

Exercise 14 - Factor out the GCF

GCF of 42 and 28 is 14.

$$42+28=14(3+2)$$

Check: $14 \times 5 = 70$ and $42+28=70$.

$$14(3+2)$$

Exercise 15 - Rewrite a sum

GCF of 45 and 75 is 15.

$$45+75=15(3+5)$$

$$15(3+5)$$

Exercise 16 - Goodie bags

The number of bags must divide both 24 and 36. GCF = 12.

$24 \div 12 = 2$ stickers and $36 \div 12 = 3$ pencils in each bag.

12 bags, each with 2 stickers and 3 pencils

Exercise 17 - Bus and train

LCM of 6 and 8 is 24.

8:00 a.m. plus 24 minutes is 8:24 a.m.

8:24 a.m.

Exercise 18 - Running schedule

LCM of 4 and 6 is 12.

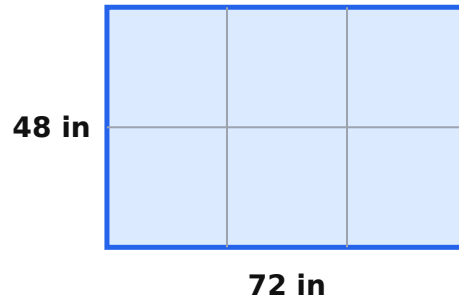
12 days

Exercise 19 - Square tiles

The side length must divide 48 and 72. $\text{GCF} = 24$.

Tiles: $48 \div 24 = 2$ rows and $72 \div 24 = 3$ columns, so $2 \times 3 = 6$ tiles.

24-inch tiles; 6 tiles



Six 24-inch tiles cover the floor.

Exercise 20 - Garden rows

GCF of 18 and 30 is 6, so there are 6 rows.

Each row has $18 \div 6 = 3$ roses and $30 \div 6 = 5$ tulips.

$$18 + 30 = 6(3 + 5).$$

6 rows of 3 roses and 5 tulips; $6(3+5)$