

# Grade 6 · Greatest Common Factor and Least Common Multiple · Worksheet Answer Key

Common Core 6.NS.B.4 · mathovore.fr

This answer key gives a full worked solution for each of the 10 problems, using prime factorizations and lists of multiples. Each word problem states whether the GCF or the LCM is needed and why.

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

### Problem 1: List the factors

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Test pairs that multiply to 36:  $1 \times 36$ ,  $2 \times 18$ ,  $3 \times 12$ ,  $4 \times 9$ ,  $6 \times 6$ .

**1, 2, 3, 4, 6, 9, 12, 18, 36**

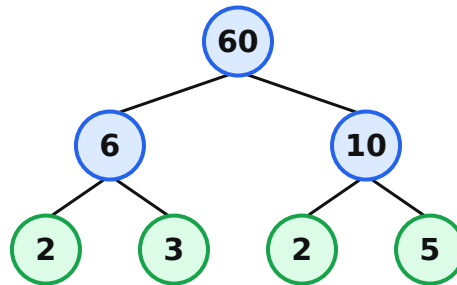
### Problem 2: Prime factorization

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Split 60 into  $6 \times 10$ , then split each:  $6 = 2 \times 3$  and  $10 = 2 \times 5$ . So  $60 = 2 \times 2 \times 3 \times 5$ .

Check:  $4 \times 3 \times 5 = 60$ .

$2^2 \times 3 \times 5$



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

### Problem 3: GCF of two small numbers

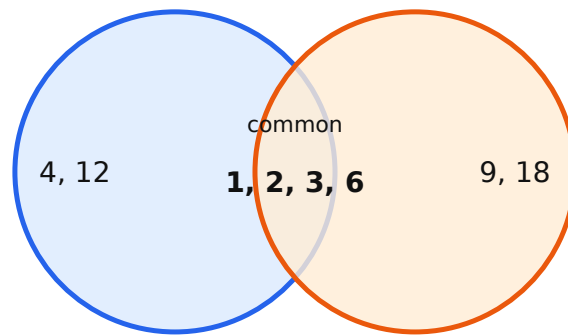
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Factors of 12: 1, 2, 3, 4, 6, 12. Factors of 18: 1, 2, 3, 6, 9, 18. The common factors are 1, 2, 3, and 6.

**GCF = 6**

### Factors of 12

### Factors of 18



The GCF is the greatest number in the overlap: 6.

### Problem 4: GCF of larger numbers

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$48 = 2 \times 2 \times 2 \times 2 \times 3$  and  $72 = 2 \times 2 \times 2 \times 3 \times 3$ . Shared primes: three 2s and one 3.  $2 \times 2 \times 2 \times 3 = 24$ .

Check:  $48 \div 24 = 2$  and  $72 \div 24 = 3$ .

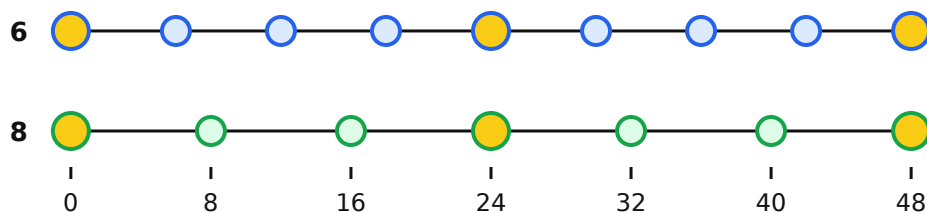
GCF = 24

### Problem 5: LCM of 6 and 8

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Multiples of 8: 8, 16, 24. Is 8 a multiple of 6? No. Is 16? No. Is 24?  $6 \times 4 = 24$ , yes.

LCM = 24



Multiples of 6 and 8 first meet at 24.

### Problem 6: LCM of 9 and 12

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Multiples of 12: 12, 24, 36. 12 is not divisible by 9, 24 is not, but  $9 \times 4 = 36$ .

LCM = 36

### Problem 7: Factor a sum

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$54 = 2 \times 3^3$  and  $36 = 2^2 \times 3^2$ . The GCF is  $2 \times 3^2 = 18$ . Divide each addend by 18:  $54 \div 18 = 3$  and  $36 \div 18 = 2$ .

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

$18(3+2)$

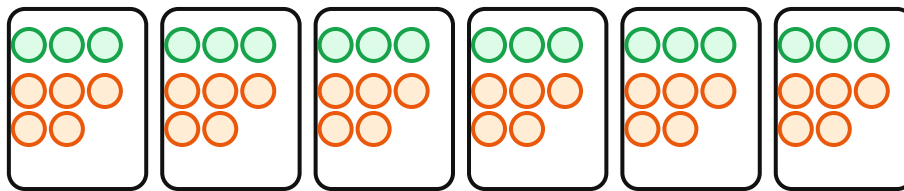
### Problem 8: Fruit baskets

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The number of baskets must divide both 36 and 60, so find the GCF.  $36=2^2\times 3^2$  and  $60=2^2\times 3\times 5$ , so the GCF is  $2^2\times 3=12$ .

Apples per basket:  $36\div 12=3$ . Oranges per basket:  $60\div 12=5$ .

**12 baskets, each with 3 apples and 5 oranges.**



(first 6 of 12 baskets shown)

12 baskets (6 shown).

### Problem 9: Bus schedules

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The buses meet again after a number of minutes that is a multiple of both 8 and 12, so find the LCM. Multiples of 12: 12, 24.  $24=8\times 3$ , so the LCM is 24.

24 minutes after 7:00 AM is 7:24 AM.

**7:24 AM**

### Problem 10: Sticker sets

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$56=2^3\times 7$  and  $84=2^2\times 3\times 7$ . The GCF is  $2^2\times 7=28$ . Sets: 28. Stars per set:  $56\div 28=2$ . Hearts per set:  $84\div 28=3$ .

Factored sum:  $56+84=28(2+3)$ . Check:  $140=28\times 5$ .

**28 sets, each with 2 stars and 3 hearts;  $56+84=28(2+3)$ .**