

Grade 4 - Factors, Multiples, Prime and Composite - Answer Key

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

Use this answer key to check each solution on the factors and multiples worksheet. Every problem shows the factor pairs or the skip counting used, so students can find any mistake and fix it.

Grade 4 · Common Core State Standards: **4.OA.B.4**

Exercise 1 - Factor pairs of 12

Try each number from 1 up: $1 \times 12 = 12$, $2 \times 6 = 12$, $3 \times 4 = 12$. Next, 4 is already used, so stop.

Factor pairs: **1 and 12, 2 and 6, 3 and 4.**

Exercise 2 - Factors of 18

Pairs: 1×18 , 2×9 , 3×6 . 4 and 5 do not divide 18 evenly, and 6 is already listed.

Factors: **1, 2, 3, 6, 9, 18.**

Exercise 3 - Multiples of 7

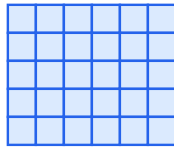
Skip count by 7: 7, 14, 21, 28, 35, 42.

Check: $7 \times 6 = 42$. The multiples are **7, 14, 21, 28, 35, 42.**

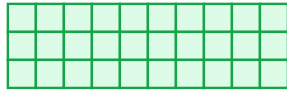
Exercise 4 - Reading an array

There are 5 rows of 6 tiles: $5 \times 6 = 30$.

Factor pairs of 30: 1×30 , 2×15 , 3×10 , 5×6 .



5 rows of 6



3 rows of 10

Two of the four arrays that make 30.

Answer: $5 \times 6 = 30$; **pairs 1 and 30, 2 and 15, 3 and 10, 5 and 6.**

Exercise 5 - Is it a factor?

Divide: $54 \div 6 = 9$ with no remainder, or $6 \times 9 = 54$.

Yes, **6 is a factor of 54.**

Exercise 6 - Is it a multiple?

(a) $8 \times 7 = 56$, so 56 is a multiple of 8.

(b) $8 \times 7 = 56$ and $8 \times 8 = 64$, so 58 falls between two multiples.

Answer: **(a) yes, (b) no.**

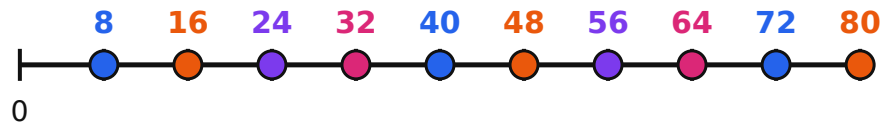
Exercise 7 - Multiples of 4 in a list

Check each: $4 \times 5 = 20$, $4 \times 8 = 32$, $4 \times 11 = 44$. The numbers 14, 26 and 38 leave a remainder of 2 when divided by 4.

Multiples of 4: **20, 32, 44.**

Exercise 8 - Missing multiples

Each jump is 8. After 16 comes $16 + 8 = 24$. After 32 comes $32 + 8 = 40$. After 56 comes $56 + 8 = 64$.



All ten multiples of 8 up to 80.

Missing numbers: **24, 40, 64.**

Exercise 9 - Prime or composite

7 has factors 1 and 7 only: prime. 9 has factors 1, 3, 9: composite. 11 has factors 1 and 11 only: prime. 15 has factors 1, 3, 5, 15: composite.

Answer: **7 prime, 9 composite, 11 prime, 15 composite.**

Exercise 10 - Primes from 20 to 40

Remove the even numbers and the multiples of 5. Then test the rest: $21 = 3 \times 7$, $27 = 3 \times 9$, $33 = 3 \times 11$, $39 = 3 \times 13$ are composite. 25 is a multiple of 5.

What is left: 23, 29, 31, 37.

Primes: **23, 29, 31, 37.**

Exercise 11 - The even prime

Any even number is a multiple of 2. If it is greater than 2, it has the factors 1, 2 and itself, so it has at least three factors and is composite. The number 2 has just the factors 1 and 2.

Answer: **2 has exactly two factors, and every larger even number has at least three.**

Exercise 12 - Divisibility by last digit

The last digit is 5.

(a) 5 is not 0, 2, 4, 6 or 8, so not divisible by 2.

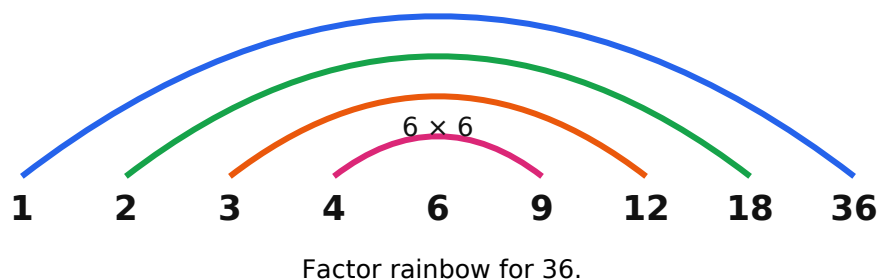
(b) The last digit is 5, so divisible by 5.

(c) The last digit is not 0, so not divisible by 10.

Answer: **(a) no, (b) yes, (c) no.**

Exercise 13 - Factor pairs of 36

1×36 , 2×18 , 3×12 , 4×9 , 6×6 . The factor 6 is counted once.



Factors: 1, 2, 3, 4, 6, 9, 12, 18, 36. Answer: **5 factor pairs, 9 factors.**

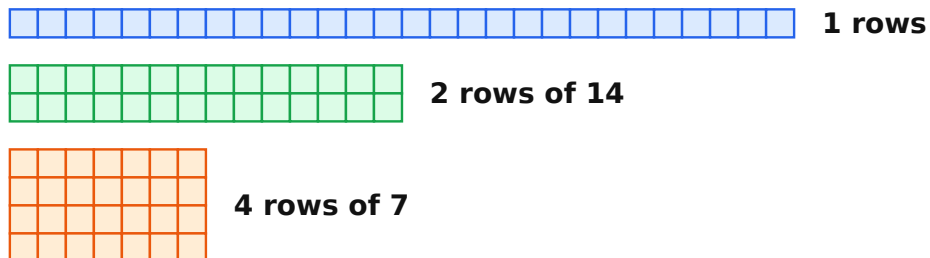
Exercise 14 - Factors of 48

Pairs: 1×48 , 2×24 , 3×16 , 4×12 , 6×8 . 5 and 7 do not divide 48.

Factors: **1, 2, 3, 4, 6, 8, 12, 16, 24, 48 (10 factors).**

Exercise 15 - Sticker poster

Row lengths are the factors of 28. Pairs: 1×28 , 2×14 , 4×7 . (5 and 3 do not work.)



Three arrays, each with 28 stickers.

Row lengths: **1, 2, 4, 7, 14, 28.**

Exercise 16 - Muffin boxes

The totals must be multiples of 6. $6 \times 7 = 42$ and $6 \times 9 = 54$. For 50: $6 \times 8 = 48$, remainder 2. For 62: $6 \times 10 = 60$, remainder 2.

Answer: **42 and 54.**

Exercise 17 - Team sizes

Team sizes must be factors of 30: 1, 2, 3, 5, 6, 10, 15, 30.

Keep sizes from 2 to 10: 2, 3, 5, 6, 10.

Answer: **2, 3, 5, 6 or 10 players per team.**

Exercise 18 - Bus schedule

Add 15 minutes each time. After 8:45 come 9:00, 9:15 and 9:30.

9:30 AM is 90 minutes after 8:00, and $15 \times 6 = 90$, so it is a multiple of 15.

Answer: **9:00, 9:15, 9:30; yes, a bus leaves at 9:30.**

Exercise 19 - Mystery prime

Primes between 40 and 50: 41, 43, 47 (42, 44, 46, 48, 50 are even, 45 is a multiple of 5, $49 = 7 \times 7$).

Digit sums: $4 + 1 = 5$, $4 + 3 = 7$, $4 + 7 = 11$.

Answer: **47.**

Exercise 20 - Ethan's claim

Try 3: $3 \times 17 = 51$. So 51 has the factors 1, 3, 17 and 51.

A prime number has only two factors, so 51 is composite.

Answer: **No. 51 = 3×17 , so it is composite.**