Mission 4

Factors: chairs in rows

Find all the factors of a number

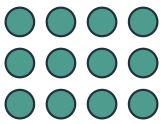
A **factor** divides a number exactly, with nothing left over. At assembly, 12 chairs can be set out in equal rows using three different factor pairs (rows × chairs in each row). Each pair also works the other way round.



1 × 12
1 row of 12



2 × 6
2 rows of 6



3 × 4
3 rows of 4

Worked example Factors come in pairs: 1 × 12, 2 × 6, 3 × 4. So the factors of 12 are **1, 2, 3, 4, 6 and 12**. Stop when the pairs start to repeat: 4 × 3 is the same pair as 3 × 4.

1. List all the factors of 18.

2. List all the factors of 20.

3. List all the factors of 36.

4. Write every factor pair for 24 chairs (rows × chairs in each row).

5. Is 7 a factor of 56? yes no Is 6 a factor of 40? yes no

6. A **prime number** has exactly two factors: 1 and itself. Circle the prime numbers:
   2 9 11 15 17 21 23 27

7. Why does 13 chairs have only one factor pair, 1 × 13?

8. Factor detective: which number from 21 to 29 has exactly 8 factors? List them.

Grown-up tip Let your child make the rectangles with coins or buttons before writing the factor pairs.

Answers for grown-ups

Factors: chairs in rows. Check together and praise good thinking. Open answers say what to look for.

1. 1, 2, 3, 6, 9, 18
2. 1, 2, 4, 5, 10, 20
3. 1, 2, 3, 4, 6, 9, 12, 18, 36
4. 1 × 24, 2 × 12, 3 × 8, 4 × 6
5. Yes (7 × 8 = 56). No (40 ÷ 6 = 6 r 4).
6. 2, 11, 17, 23
7. 13 is a prime number: its only factors are 1 and 13.
8. 24: 1, 2, 3, 4, 6, 8, 12, 24

Where this page comes from

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