

**TARGET** To identify common factors and prime numbers.

## Examples

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

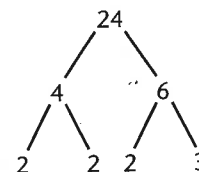
Highest common factor 8

Prime numbers – 2 factors only e.g. 23

Composite numbers – more than 2 factors e.g. 24

Prime factors can be found by using a factor tree.

Prime factors of 24:  $2 \times 2 \times 2 \times 3$



## A

Find all the factors of each number. The number of factors is shown in brackets.

- |          |            |
|----------|------------|
| 1 12 (6) | 7 55 (4)   |
| 2 28 (6) | 8 18 (6)   |
| 3 25 (3) | 9 100 (9)  |
| 4 30 (8) | 10 54 (8)  |
| 5 32 (6) | 11 49 (3)  |
| 6 27 (4) | 12 60 (12) |

Write down the number(s) in each group which are not prime numbers.

- 13 7 8 9 10
- 14 17 18 19 20
- 15 23 24 25 26
- 16 31 32 33 34
- 17 46 47 48 49
- 18 56 57 58 59
- 19 70 71 72 73
- 20 88 89 90 91

- 21 The first five prime numbers are:  
2, 3, 5, 7, 11  
Write down the next ten prime numbers.

## B

For each pair of numbers find:

- a) the common factors  
b) the highest common factor.

- |          |           |
|----------|-----------|
| 1 6, 15  | 7 36, 96  |
| 2 16, 24 | 8 40, 100 |
| 3 45, 60 | 9 28, 70  |
| 4 12, 18 | 10 32, 72 |
| 5 8, 12  | 11 18, 30 |
| 6 27, 36 | 12 24, 60 |

- 13 List all the prime numbers below 100.  
There are 25.

Explain why these numbers are composite numbers.

- |        |         |
|--------|---------|
| 14 738 | 18 1990 |
| 15 273 | 19 177  |
| 16 415 | 20 301  |
| 17 119 | 21 143  |

Find all the prime factors of:

- |       |        |
|-------|--------|
| 22 50 | 26 52  |
| 23 36 | 27 132 |
| 24 28 | 28 90  |
| 25 60 | 29 72. |

## C

For each group of numbers find:

- a) the common factors  
b) the highest common factor.

- |                 |
|-----------------|
| 1 20, 32, 60    |
| 2 225, 450, 600 |
| 3 32, 64, 80    |
| 4 9, 27, 33     |
| 5 56, 96, 120   |
| 6 36, 54, 108   |
| 7 30, 48, 84    |
| 8 45, 72, 135   |

Explain why these numbers are composite numbers.

- |        |         |
|--------|---------|
| 9 253  | 11 1923 |
| 10 221 | 12 361  |

Find all the prime numbers between:

- |                 |
|-----------------|
| 13 100 and 110  |
| 14 130 and 140  |
| 15 150 and 160  |
| 16 190 and 200. |

Find the prime factors of:

- |        |         |
|--------|---------|
| 17 200 | 21 182  |
| 18 144 | 22 375  |
| 19 162 | 23 252  |
| 20 264 | 24 440. |