Planner

Multiples, factors and primes

- Finding common factors and the highest common factor (HCF)
- Finding common multiples and the lowest common multiple (LCM)

Keywords

You should know

explanation 1

1 Which of these numbers are divisible by 2?

a 14 **b** 17 **c** 22 **d** 83 **e** 61 **f** 244

2 Which of these numbers are divisible by 3?

a 18 **b** 33 **c** 42 **d** 56 **e** 69 **f** 111

3 Which of these numbers are divisible by 5?

a 15 **b** 30 **c** 54 **d** 85 **e** 99 **f** 1000

4 Which of these numbers are divisible by 7? Use your calculator to help you.

a 21 **b** 47 **c** 56 **d** 77 **e** 98 **f** 105

explanation 2

5 **a** Is 60 a multiple of 10?

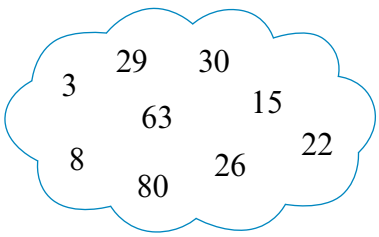
b Write the next four multiples of 10.

6 **a** Write the first six multiples of 5.

b Start with 70. Write the next three multiples of 5.

7 **a** Which of these numbers are multiples of 2?

b Which of these numbers are multiples of 4?



8 **a** Is 72 a multiple of 3?

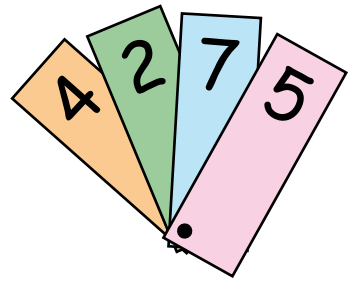
b Write the next three multiples of 3.

9 **a** Write four numbers larger than 50 that are multiples of 3.

b Write four numbers larger than 500 that are multiples of 3.

10 **a** Is the number shown on the fan a multiple of 3?

b Is it a multiple of 5?



explanation 3 — online

11 **a** Write the first six multiples of 2.

b Write the first six multiples of 3.

c Write the common multiples of 2 and 3.

d Write down the lowest common multiple (LCM) of 2 and 3.

12 Using the method in question **11**, find the LCM of each pair of numbers.

a 2 and 5 **b** 3 and 4 **c** 4 and 5

13 Find the LCM of each pair of numbers.

a 3 and 5 **b** 8 and 10 **c** 5 and 6

14 The CITI 1 bus goes every 10 minutes.

The CITI 2 bus goes every 15 minutes.

a Both buses leave the station at 9 a.m. When will they next leave together?

b Find the LCM of 10 and 15. What do you notice?

explanation 4 online

15 Find all the pairs of factors for each number, then list the factors in order.

a 15 **b** 24 **c** 36 **d** 48

16 Which of these numbers has a factor of 2?

a 16 **b** 25 **c** 38 **d** 69 **e** 90

17 Which of these numbers has a factor of 3?

a 18 **b** 29 **c** 39 **d** 72 **e** 87

18 84, 135, 720, 605, 194, 900, 10, 325, 678

a Sort these numbers into two groups.

i numbers that have a factor of 5

ii numbers that do not have a factor of 5

b Sort the numbers into two different groups.

i numbers that have a factor of 3

ii numbers that do not have a factor of 3

explanation 5

19 **a** List the factors of 24.

b List the factors of 36.

c Write down the common factors of 24 and 36.

d What is the highest common factor (HCF) of 24 and 36?

20 Use the method in question **19** to find the HCF of each pair of numbers.

a 24 and 32 **b** 21 and 35 **c** 48 and 60

21 Find the HCF of these pairs of numbers.

a 25 and 40 **b** 18 and 24 **c** 22 and 66

explanation 6

22 **a** Write the first ten prime numbers.

b Which of these prime numbers are even?

c Explain why there is only one even prime number.

23 Which of these are prime numbers?

a 17 **b** 32 **c** 47 **d** 63

24 **a** Find two prime numbers that add together to make 16 and have a difference of 6.

b Find two prime numbers that add together to make 26 and have a difference of 12.

c Find two prime numbers that add together to make 26 and have a difference of 20.

25 **a** Is 401 a prime number? (Hint: use your calculator to check for factors by testing prime numbers less than 20.)

b Is 1023 a prime number?

26 You need a calculator for this question.

a Choose a prime number bigger than 3 and write it down.

b Square your prime number (multiply it by itself).

c Subtract 1 from your answer to part **b**.

d Is your last answer divisible by 12? How can you tell?

e Repeat parts **b** to **d** using these prime numbers.

i 19 **ii** 47 **iii** 73

f Try some more prime numbers and explain what you have found.