

KS3 – Factors, Multiples & Primes

Section A – Factors & Multiples

Q1 (3 marks)

Write down all the factors of each number.

a) 12

b) 20

c) 30

Q2 (3 marks)

Write down the first five positive multiples of each number.

a) 4

b) 7

c) 12

Q3 (3 marks)

From the numbers below, write down all the factors of 48.

2, 3, 4, 5, 6, 8, 10, 12, 16, 24

[There may be more than one answer.]

Q4 (3 marks)

Complete each statement with a factor or multiple of the number given.

a) _____ is a factor of 35.

b) _____ is a multiple of 9 greater than 40.

c) _____ is both a factor of 36 and a multiple of 4.

Q5 (2 marks)

Write down all the common factors of 18 and 30.

Challenge

Q6 (2 marks)

A number is a multiple of both 6 and 8.

It is greater than 40 but less than 70.

What is the number?

Section B – Prime Numbers

Q7 (3 marks)

From the numbers below, write down all the prime numbers.

7, 9, 11, 15, 17, 21, 23, 27

Q8 (2 marks)

Write down all the prime numbers between 20 and 40.

Q9 (3 marks)

State whether each number is prime or not prime.

a) 31

b) 51

c) 67

Q10 (2 marks)

Write down:

a) the smallest prime number

b) the only even prime number

Q11 (2 marks)

Write each number as the sum of two prime numbers.

a) 20

b) 34

Give one possible answer for each.

Challenge

Q12 (2 marks)

Two different prime numbers have a sum of 36.

One of the prime numbers is greater than 10 but less than 15.

Find the two prime numbers.

Section C – LCM & HCF

Q13 (2 marks)

Find the lowest common multiple (LCM) of:

a) 4 and 6

b) 5 and 8

Q14 (2 marks)

Find the highest common factor (HCF) of:

a) 12 and 18

b) 24 and 36

Q15 (2 marks)

Find the LCM of:

a) 8 and 12

b) 15 and 20

Q16 (2 marks)

Find the HCF of:

a) 28 and 42

b) 45 and 60

Q17 (2 marks)

Find:

a) the LCM of 6, 8 and 12

b) the HCF of 24, 36 and 60

Q18 (2 marks)

A red light flashes every 6 seconds.

A blue light flashes every 8 seconds.

They flash together now. After how many seconds will they next flash together?

Q19 (2 marks)

A teacher has 24 red pens and 36 blue pens.

She wants to make identical packs using all the pens, with the same number of red pens and the same number of blue pens in each pack.

What is the greatest number of packs she can make?

Challenge

Q20 (3 marks)

Two buses leave a station at the same time.

Bus A leaves every 18 minutes.

Bus B leaves every 24 minutes.

They both leave at 9:00 am.

At what time will they next leave the station together?

Section D – Prime Factors

Q21 (3 marks)

Write each number as a product of its prime factors.

a) 24

b) 40

c) 54

Q22 (3 marks)

Write each number as a product of its prime factors.

Give your answers using index notation.

a) 60

b) 72

c) 150

Q23 (2 marks)

Complete each prime factorisation.

a) $84 = 2^2 \times 3 \times \underline{\hspace{2cm}}$

b) $180 = 2^2 \times \underline{\hspace{2cm}} \times 5$

Q24 (2 marks)

A number has the prime factorisation:

$$2^3 \times 3^2$$

Work out the number.

Q25 (2 marks)

A number has the prime factorisation:

$$2^2 \times 3 \times 5^2$$

Work out the number.

Challenge

Q26 (2 marks)

The prime factorisation of two numbers is shown below.

$$A = 2^3 \times 3 \times 5$$

$$B = 2^2 \times 3^2 \times 5$$

Find the HCF of A and B.

Q27 (2 marks)

The prime factorisation of two numbers is shown below.

$$C = 2^2 \times 3 \times 7$$

$$D = 2 \times 3^2 \times 7$$

Find the LCM of C and D.

Total: ____ / 62
Percentage: ____%