

# GCSE Maths Factors, Multiples and Primes (Higher): check-up and exam-style questions: answers

GCSE Maths - Factors, Multiples and Primes - Higher - Test yourself

**Answers.** Final answers to the worksheet questions. Full step-by-step solutions for every question are free at [websink.site/gcse/maths/ch02-factors-multiples-primes-powers/higher/check-up-and-exam-style-questions/](https://websink.site/gcse/maths/ch02-factors-multiples-primes-powers/higher/check-up-and-exam-style-questions/)

## Exercise 2Z Check-up (non-calculator) Non-calculator

- 1 List all the factors of 28.

**Answer:** 1, 2, 4, 7, 14, 28

- 2 Is 87 a prime number? Give a reason.

**Answer:** Not prime ( $87 = 3 \times 29$ )

- 3 Write 90 as a product of its prime factors. Give your answer in index form.

**Answer:**  $2 \times 3^2 \times 5$

- 4 Work out the HCF of 18 and 30.

**Answer:** 6

- 5 Work out the LCM of 8 and 12.

**Answer:** 24

- 6 Work out  $\sqrt{169}$ .

**Answer:** 13

- 7 Work out  $5^3$ .

**Answer:** 125

- 8 Write  $2^6 \times 2^3$  as a single power of 2.

**Answer:**  $2^9$

- 9 Work out  $4^{-2}$ . Give your answer as a fraction.

**Answer:**  $\frac{1}{16}$

- 10 Write down the two consecutive whole numbers between which  $\sqrt{60}$  lies.

**Answer:** between 7 and 8

## Exercise 2X Exam-style questions Non-calculator

- 1 Write 60 as a product of its prime factors.

[3 marks]

**Answer:**  $2^2 \times 3 \times 5$

- 2 Write down all the factors of 20.

[2 marks]

**Answer:** 1, 2, 4, 5, 10, 20

- 3** Find the lowest common multiple (LCM) of 12 and 15. [2 marks]

**Answer:** 60

- 4** Find the highest common factor (HCF) and the lowest common multiple (LCM) of 36 and 48. [4 marks]

**Answer:** HCF = 12, LCM = 144

- 5** Work out the value of each of these. [2 marks]

(a)  $\sqrt{81}$

**Answer:** 9

(b)  $2^5$

**Answer:** 32

- 6** Work out  $\sqrt{6^2 + 8^2}$ . [2 marks]

**Answer:** 10

- 7** Write each of these as a single power of 5 or 7. [2 marks]

(a)  $5^4 \times 5^3$

**Answer:**  $5^7$

(b)  $7^8 \div 7^5$

**Answer:**  $7^3$

- 8** Work out the value of  $2^{-3}$ . Give your answer as a fraction. [2 marks]

**Answer:**  $\frac{1}{8}$

- 9** Write down the two consecutive whole numbers between which  $\sqrt{70}$  lies. [2 marks]

**Answer:** between 8 and 9

- 10** Daisy has three cards with the digits 3, 5 and 8. She uses all three cards to make a three-digit number. (a) List all the three-digit numbers she can make. (b) How many of them are even? [3 marks]

(a) (a)

**Answer:** 358, 385, 538, 583, 835, 853

(b) (b)

**Answer:** 2

- 11** A bell rings every 12 minutes and a second bell rings every 15 minutes. Both bells ring together at 10:00 am. At what time do they next ring together? [3 marks]

**Answer:** 11:00 am

- 12** Write 168 and 252 as products of prime factors. Hence find the HCF of 168 and 252. [4 marks]

**Answer:** 84

**13** Write  $8^2 \times 4^3$  as a single power of 2. [3 marks]

**Answer:**  $2^{12}$

**14** How many four-digit numbers (from 1000 to 9999) have four different digits? [3 marks]

**Answer:** 4536

**15**  $A = 2^3 \times 3^2 \times 5$  and  $B = 2^2 \times 3 \times 7$ . Find the HCF and the LCM of  $A$  and  $B$ , in index form. [4 marks]

**Answer:** HCF =  $2^2 \times 3$ , LCM =  $2^3 \times 3^2 \times 5 \times 7$

**16** Find the smallest positive whole number  $k$  such that  $504k$  is a perfect square. [3 marks]

**Answer:** 14