

GCSE Maths: Multiples and factors (Higher): answers

GCSE Maths - Factors, Multiples and Primes - Higher - Lesson 2.1

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/multiples-and-factors/

Exercise 2A Multiples and factors

Non-calculator

1 Write down the first five multiples of each number.

(a) 4

Answer: 4, 8, 12, 16, 20

(b) 6

Answer: 6, 12, 18, 24, 30

(c) 9

Answer: 9, 18, 27, 36, 45

(d) 11

Answer: 11, 22, 33, 44, 55

(e) 15

Answer: 15, 30, 45, 60, 75

(f) 20

Answer: 20, 40, 60, 80, 100

2 List all the factors of each number.

(a) 10

Answer: 1, 2, 5, 10

(b) 18

Answer: 1, 2, 3, 6, 9, 18

(c) 24

Answer: 1, 2, 3, 4, 6, 8, 12, 24

(d) 30

Answer: 1, 2, 3, 5, 6, 10, 15, 30

(e) 42

Answer: 1, 2, 3, 6, 7, 14, 21, 42

(f) 48

Answer: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

3 Is the first number a multiple of the second? Write yes or no.

(a) 48 and 6

Answer: Yes

(b) 52 and 8

Answer: No

(c) 91 and 7

Answer: Yes

(d) 105 and 15

Answer: Yes

(e) 132 and 12

Answer: Yes

(f) 250 and 40

Answer: No

4 Is the first number a factor of the second? Write yes or no.

(a) 3 and 51

Answer: Yes

(b) 4 and 90

Answer: No

(c) 7 and 98

Answer: Yes

(d) 6 and 76

Answer: No

(e) 9 and 117

Answer: Yes

(f) 8 and 200

Answer: Yes

5 Use a divisibility test to answer each part. Do not use a calculator to divide.

(a) Is 4512 divisible by 3?

Answer: Yes

(b) Is 7316 divisible by 4?

Answer: Yes

(c) Is 3465 divisible by 5?

Answer: Yes

(d) Is 6381 divisible by 9?

Answer: Yes

(e) Is 1248 divisible by 6?

Answer: Yes

(f) Is 9152 divisible by 8?

Answer: Yes

6 Here is a list of numbers: **3, 6, 8, 12, 15, 18, 24, 30.**

(a) Write down the multiples of 4.

Answer: 8, 12, 24

(b) Write down the factors of 24.

Answer: 3, 6, 8, 12, 24

(c) Write down the factors of 30.

Answer: 3, 6, 15, 30

(d) Write down the multiples of 6.

Answer: 6, 12, 18, 24, 30

7 Write down the common factors of each pair of numbers.

(a) 12 and 18

Answer: 1, 2, 3, 6

(b) 20 and 30

Answer: 1, 2, 5, 10

(c) 16 and 24

Answer: 1, 2, 4, 8

(d) 14 and 35

Answer: 1, 7

8 Write down the first three common multiples of each pair of numbers.

(a) 2 and 3

Answer: 6, 12, 18

(b) 4 and 6

Answer: 12, 24, 36

(c) 3 and 5

Answer: 15, 30, 45

(d) 6 and 8

Answer: 24, 48, 72

- 9 Eggs are sold in boxes of 6. Mel buys some boxes. Could she have exactly 50 eggs? Explain your answer.

Answer: No. 50 is not a multiple of 6 ($6 \times 8 = 48$ and $6 \times 9 = 54$).

- 10 Twelve chairs are put in equal rows. Every row must have the same number of chairs. Write down all the different ways the chairs can be arranged, as (number of rows) $\times$ (chairs in each row).



$$1 \times 12$$



$$2 \times 6$$



$$3 \times 4$$

Answer: 1×12 , 2×6 , 3×4 , 4×3 , 6×2 , 12×1 (6 ways)

- 11 Decide whether each statement is true or false. Give a reason.

- (a) All multiples of 4 are even.

Answer: True

- (b) All factors of 12 are even.

Answer: False. 3 is a factor of 12 and 3 is odd.

- (c) 1 is a factor of every whole number.

Answer: True

- (d) A number always has more multiples than factors.

Answer: True

- 12 Dev says: "The factors of 18 are 1, 2, 3, 6 and 9." Is he right? Explain.

Answer: No. He left out 18, because every number is a factor of itself.

- 13 Prove that the sum of any three consecutive whole numbers is a multiple of 3.

Answer: $n + (n + 1) + (n + 2) = 3n + 3 = 3(n + 1)$, a multiple of 3

- 14 Show that the product of two consecutive whole numbers is always even.

Answer: One of the two numbers is even, so the product is even

- 15 I am thinking of a number. It is between 30 and 70. It is a multiple of 8. It is a factor of 144. What is my number?

Answer: 48