

Year 5: Factors, factor pairs and common factors: answers

Year 5 - Prime Numbers, Factors, Squares and Cubes - Lesson 3.3

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/ks2-sats/maths/year-5/ch03-factors-primessquares-cubes/factors-factor-pairs-and-common-factors/

Exercise 3C Factors and factor pairs Non-calculator

1 Is each number a factor of 48? Write Yes or No.

(a) 5

Answer: No

(b) 6

Answer: Yes

(c) 8

Answer: Yes

(d) 9

Answer: No

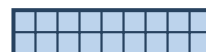
(e) 12

Answer: Yes

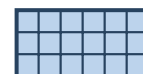
2 The arrays show 18 squares arranged in rectangles.



1×18



2×9



3×6

(a) Write the factor pair shown by each array.

Answer: 1×18 , 2×9 , 3×6

(b) Write all the factors of 18.

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

3 Write all the factor pairs of each number.

(a) 10

Answer: 1×10 , 2×5

(b) 14

Answer: 1×14 , 2×7

(c) 20

Answer: 1×20 , 2×10 , 4×5

(d) 28

Answer: $1 \times 28, 2 \times 14, 4 \times 7$

4 Write all the factors of each number, in order.

(a) 15

Answer: 1, 3, 5, 15

(b) 21

Answer: 1, 3, 7, 21

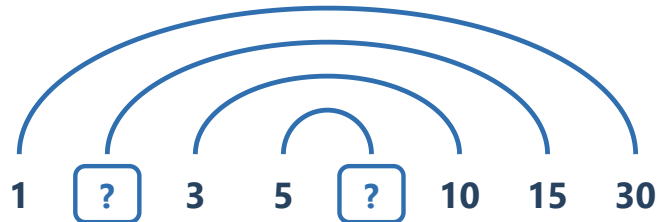
(c) 32

Answer: 1, 2, 4, 8, 16, 32

(d) 40

Answer: 1, 2, 4, 5, 8, 10, 20, 40

5 This factor rainbow shows all the factors of 30. Write the two missing factors.



Answer: 2 and 6

6 These are square numbers. Write all their factors. Write the middle factor once.

(a) 25

Answer: 1, 5, 25

(b) 49

Answer: 1, 7, 49

(c) 64

Answer: 1, 2, 4, 8, 16, 32, 64

(d) 100

Answer: 1, 2, 4, 5, 10, 20, 25, 50, 100

7 Write all the factors of each number.

(a) 56

Answer: 1, 2, 4, 7, 8, 14, 28, 56

(b) 72

Answer: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

8 There are 28 children in a PE lesson. The teacher splits them into equal teams. Nobody is left out. Each team must have more than 1 child, and there must be more than 1 team. How many children could be in each team?

Answer: 2, 4, 7, 14

- 9 Mei has 36 square tiles. She uses all of them to make a rectangle. How many different rectangles can she make? (A rectangle turned on its side is the same rectangle.)

Answer: 5

- 10 Which number has more factors, 40 or 45? Write how many factors each number has.

Answer: 40 (8 factors; 45 has 6)

- 11 Liam lists the factors of 24: 1, 2, 3, 4, 6, 12, 24. He has missed one factor. Which one?

Answer: 8

- 12 True or false?

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

Answer: True

- (b) A factor of 20 can be bigger than 20.

Answer: False

- (c) All the factors of an even number are even.

Answer: False

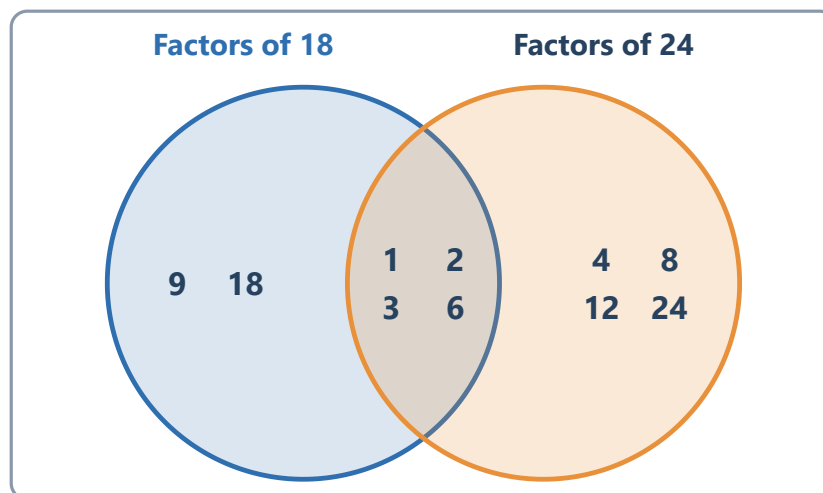
- 13 Always, sometimes or never? A square number has an odd number of factors. Test 16, 25 and 36 and explain your answer.

Answer: Always

Exercise 3D Common factors and the highest common factor

Non-calculator

- 1 The Venn diagram shows the factors of 18 and the factors of 24.



- (a) Write the common factors of 18 and 24.

Answer: 1, 2, 3, 6

- (b) What is the highest common factor of 18 and 24?

Answer: 6

(c) Why is 9 not in the middle?

Answer: 9 is a factor of 18 but not a factor of 24

2 Write the common factors of each pair of numbers.

(a) 12 and 20

Answer: 1, 2, 4

(b) 15 and 25

Answer: 1, 5

(c) 16 and 24

Answer: 1, 2, 4, 8

(d) 18 and 30

Answer: 1, 2, 3, 6

3 Find the highest common factor (HCF) of each pair of numbers.

(a) 9 and 12

Answer: 3

(b) 14 and 21

Answer: 7

(c) 20 and 50

Answer: 10

(d) 36 and 48

Answer: 12

4 Which of these numbers are common factors of 30 and 45? 3, 5, 6, 9, 15

Answer: 3, 5, 15

5 A rectangular floor is 60 cm long and 45 cm wide. Square tiles are used to cover it with no gaps and no cutting.

(a) What is the side length of the biggest square tile that can be used?

Answer: 15 cm

(b) How many of these tiles are needed?

Answer: 12

6 Noah has 18 apples and 30 oranges. He puts them in identical bags with no fruit left over.

(a) What is the greatest number of bags he can fill?

Answer: 6

(b) How much of each fruit is in one bag?

Answer: 3 apples and 5 oranges

- 7 Mia says, "The highest common factor of 12 and 18 is 36, because $12 \times 3 = 36$ and $18 \times 2 = 36$." Mia has made a mistake. Explain it and find the HCF.

Answer: 36 is a common multiple, not a factor. The HCF is 6.

- 8 Which pair of numbers has only 1 as a common factor? A 8 and 15 B 6 and 9 C 14 and 21 D 10 and 25

Answer: A (8 and 15)

- 9 Challenge! Two different numbers less than 20 have a highest common factor of 6 and a lowest common multiple of 36. What are the two numbers?

Answer: 12 and 18