Visual Learning Animation

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Find the Greatest Common Factor (GCF) of 20 and 30 to find the greatest number of fish that could be put into each container.

If a number is a factor of two numbers, it is called a common factor.

The greatest common factor (GCF) of two numbers is the greatest number that is a factor of both numbers.

What is a common factor of all numbers? [1]

One Way

To find the greatest common factor of 20 and 30, you can list all the factors of each number and circle all the common factors.

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

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

The GCF of 20 and 30 is 10.

So, the store can put 10 fish in each container.

What are the common factors of 20 and 30? [1, 2, 5, and 10] *Which of these common factors is the greatest number?* [10]

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Independent Practice

In **7** through **18**, find the greatest common factor (GCF) of each number using prime factorization or a list of factors.

7. 20 and 35 — 5

8. 16 and 18 — 2

9. 15 and 6 — 3

10. 24 and 36 — 12

11. 48 and 30 — 6

12. 22 and 77 — 11

13. 100 and 96 — 4

14. 60 and 32 — 4

15. 90 and 81 — 9

16. 72 and 27 — 9

17. 11 and 15 — 1

18. 14 and 21 — 7

Problem Solving

19. Rick Hansen holds the record for the longest journey by wheelchair. He wheeled his wheelchair across 4 continents and 34 countries. What is the GCF of 4 and 34?

A 1 **B** 2 **C** 4 **D** 17

20. Which list shows all the common factors of 36 and 54?

A 1, 2, 3, 6 **C** 1, 2, 3, 6, 9, 18

B 1, 2, 3, 6, 9 **D** 1, 2, 3, 6, 9, 12, 18

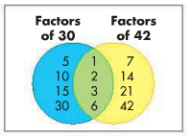
21. If you buy a television for $486, including tax, and are allowed to pay for it in 6 equal payments, how much will each payment be?

$81

22. How many pairs of factors does 40 have? List them.

4; 1, 40; 2, 20; 4, 10; 5, 8

The **Venn diagram** at the right shows the common factors and the GCF of 30 and 42.



23. What does each region of the diagram show?

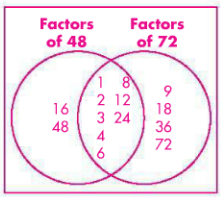
See margin.

24. Use a Venn diagram to show the common factors of 48 and 72. What is the GCF?

See margin.

23. The green region shows the common factors. The blue and yellow regions show factors that 30 and 42 don't share.

24.



GCF: 24

3 Independent Practice

Remind students that a greatest common factor of two numbers will always be less than or equal to the lesser number. If one of the numbers is prime, the greatest common factor will either be the prime number or 1. *In Exercise 17, is one or both of the numbers prime?* [Yes, 11] *Is 11 a factor of 15?* [No] *So, 1 is the greatest common factor.*

Problem Solving

Exercise	Content
19	Greatest Common Factor
20	Common Factors
21	Division (486 ÷ 6)
22	Factors of a Number
23	Venn Diagram
24	Venn Diagram

Students use underlying processes and mathematical tools for Exercises 19–24. Remind students to check for reasonableness when solving each problem.

Exercise 20

Test-Taking Tip: Make Smart Choices Remind students to eliminate wrong answers. *Look at the answer choices. Do any of the lists have a number that is not a factor of both 36 and 54?* [Yes, in choice D, 12 is not a factor of 54.] *Look at the rest of the answer choices. Which choice has the most numbers?* [C] *Are all the numbers in the list factors of 36 and 54?* [Yes]

Early Finishers *Include the number 16 in Exercises 11–14 and now find the GCF for all 3 numbers.* [2, 1, 4, 4]