LESSON MAKER PRO

Number Matchups

Find shared factors and multiples, then use them to solve problems.

GRADE 6 · 6.NOS.B.4

6.NOS.B.4 "Identify the common factors and multiples of two whole numbers. Identify the greatest common factor of two whole numbers within 100. Identify the least common multiple of two whole numbers within 12..."

NAME _____ DATE _____

THE BIG IDEA

A common factor divides each of two numbers. The greatest common factor, or GCF, is the largest one. To factor a sum, divide both addends by their GCF and put it outside parentheses. The least common multiple, or LCM, is the smallest positive multiple shared by both numbers.

WORKED EXAMPLE

Find the GCF of 28 and 42. Use it to rewrite 28 + 42.

1. Factors of 28: 1, 2, 4, 7, 14, 28.
2. Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42.
3. The greatest factor on both lists is 14. Divide each addend by 14: 28 / 14 = 2 and 42 / 14 = 3.

Answer: GCF = 14; 28 + 42 = 14(2 + 3)

PRACTICE 6 problems

1 List all common factors of 16 and 36. Give their GCF.

ANSWER _____

2 Find the GCF of 45 and 60.

ANSWER _____

3 Rewrite 54 + 72 by factoring out the GCF.

ANSWER _____

4 Rewrite 35 + 50 by factoring out the GCF.

ANSWER _____

5 List the first three positive common multiples of 4 and 6. Give their LCM.

ANSWER _____

6 Find the LCM of 8 and 9.

ANSWER _____

APPLY IT Show your work

1 At the start of a game, two power-ups appear together. One reappears every 6 minutes, and the other reappears every 8 minutes. After how many minutes will they next appear together?

WORK SPACE

ANSWER _____

2 A club has 48 blue beads and 64 green beads for identical keychains. Every keychain must have the same number of blue beads and the same number of green beads, with none left over. What is the greatest number of keychains the club can make? How many beads of each color will be on each keychain?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Find the GCF of 63 and 81. Use it to rewrite 63 + 81 as a product. Explain how you know you factored out the greatest common factor.

WORK SPACE AND ANSWER

ANSWER KEY

Number Matchups

GRADE 6 · 6.NOS.B.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	List all common factors of 16 and 36. Give their GCF.	**Common factors: 1, 2, 4; GCF: 4**
2	Find the GCF of 45 and 60.	**15**
3	Rewrite 54 + 72 by factoring out the GCF.	**18(3 + 4)**
4	Rewrite 35 + 50 by factoring out the GCF.	**5(7 + 10)**
5	List the first three positive common multiples of 4 and 6. Give their LCM.	**Common multiples: 12, 24, 36; LCM: 12**
6	Find the LCM of 8 and 9.	**72**

PART 2 · APPLY IT

1. **24 minutes** The first positive common multiple of 6 and 8 is 24.
2. **16 keychains, with 3 blue beads and 4 green beads on each** The GCF of 48 and 64 is 16. Divide each bead count by 16 to get 3 blue and 4 green beads per keychain.

CHALLENGE

GCF = 9; 63 + 81 = 9(7 + 9). The numbers 7 and 9 have no common factor greater than 1, so no larger factor can be taken out.

For the factoring problems, require the GCF outside the parentheses. In the challenge, accept an explanation that lists the factors of 63 and 81 and identifies 9 as their greatest common factor.