

# Factor Match Mission

*Find shared factors and shared multiples.*

**GRADE 6 • NY-6.NS.4**

**NY-6.NS.4** "Find the greatest common factor of two whole numbers less than or equal to 100. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## THE BIG IDEA

The greatest common factor, or GCF, is the largest factor that divides both numbers with no remainder. To rewrite a sum, factor out the GCF by dividing each addend by it. The least common multiple, or LCM, is the smallest multiple that two numbers share.

## WORKED EXAMPLE

Find the GCF of 84 and 66. Then use the distributive property to rewrite  $84 + 66$ .

- $84 = 2 \times 2 \times 3 \times 7$  and  $66 = 2 \times 3 \times 11$ .
- The shared prime factors are  $2 \times 3 = 6$ , so the GCF is 6.
- Divide each addend by 6:  $84 + 66 = 6(14 + 11) = 6(25)$ .

**Answer: GCF = 6;  $84 + 66 = 6(14 + 11) = 150$**

## PRACTICE 6 problems

- 1** Find the GCF of 42 and 70.

**ANSWER** \_\_\_\_\_

- 2** Find the LCM of 8 and 12.

**ANSWER** \_\_\_\_\_

- 3** Use the distributive property to write  $45 + 60$  as a product with a sum inside parentheses.

**ANSWER** \_\_\_\_\_

- 4** Find the GCF of 54 and 81.

**ANSWER** \_\_\_\_\_

- 5** Find the LCM of 9 and 10.

**ANSWER** \_\_\_\_\_

- 6** Use the distributive property to write  $28 + 49$  as a product with a sum inside parentheses.

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** A game club has 36 strategy cards and 48 action cards. The club wants to make the greatest possible number of identical prize packs using all the cards. How many prize packs can it make, and how many cards of each type will be in each pack?

WORK SPACE

ANSWER \_\_\_\_\_

- 2** A video game adds a new quest every 4 days and holds a tournament every 9 days. Both happen today. In how many days will both happen on the same day again?

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

Find the GCF of 78 and 90. Then use the distributive property to rewrite  $78 + 90$ . Explain why the two numbers inside the parentheses have no common factor other than 1.

WORK SPACE AND ANSWER

## PART 1 • PRACTICE

| # | PROBLEM                                                                                      | ANSWER                        |
|---|----------------------------------------------------------------------------------------------|-------------------------------|
| 1 | Find the GCF of 42 and 70.                                                                   | <b>14</b>                     |
| 2 | Find the LCM of 8 and 12.                                                                    | <b>24</b>                     |
| 3 | Use the distributive property to write $45 + 60$ as a product with a sum inside parentheses. | <b><math>15(3 + 4)</math></b> |
| 4 | Find the GCF of 54 and 81.                                                                   | <b>27</b>                     |
| 5 | Find the LCM of 9 and 10.                                                                    | <b>90</b>                     |
| 6 | Use the distributive property to write $28 + 49$ as a product with a sum inside parentheses. | <b><math>7(4 + 7)</math></b>  |

## PART 2 • APPLY IT

1. **12 prize packs; each pack has 3 strategy cards and 4 action cards.** Find  $\text{GCF}(36, 48) = 12$ . Divide each card total by 12 to find the contents of one pack.
2. **36 days** Find  $\text{LCM}(4, 9) = 36$ .

## CHALLENGE

**$\text{GCF} = 6$ ;  $78 + 90 = 6(13 + 15)$ . The numbers 13 and 15 have no common factor other than 1, so 6 is the greatest factor taken out.**

Accept equivalent factored forms when the factor outside the parentheses is the GCF and the numbers inside have a GCF of 1. For the prize-pack problem, accept answers that clearly state 12 packs with 3 strategy cards and 4 action cards per pack.