LESSON MAKER PRO

Factor Out Fun

Rewrite sums by using a shared factor.

GRADE 6 · MA.6.NSO.3.2

MA.6.NSO.3.2 "Rewrite the sum of two composite whole numbers having a common factor, as a common factor multiplied by the sum of two whole numbers."

NAME _____ DATE _____

FACTOR A SHARED NUMBER

When two composite addends share a factor, write each addend as that factor times another whole number. Then use the distributive property to write the sum as factor(number + number). Using the greatest common factor makes the expression fully factored.

WORKED EXAMPLE

Rewrite 44 + 66 using the greatest common factor.

1. 44 = 22 × 2 and 66 = 22 × 3.
2. Replace each addend with its factored form: 22 × 2 + 22 × 3.
3. Factor out 22: 22(2 + 3).

Answer: 22(2 + 3)

PRACTICE 6 problems

1 Rewrite 24 + 42 using the greatest common factor.

ANSWER _____

2 Rewrite 35 + 49 using the greatest common factor.

ANSWER _____

3 Rewrite 48 + 60 using the greatest common factor.

ANSWER _____

4 Rewrite 54 + 81 using the greatest common factor.

ANSWER _____

5 Rewrite 56 + 72 using the greatest common factor.

ANSWER _____

6 Rewrite 63 + 90 using the greatest common factor.

ANSWER _____

APPLY IT Show your work

1 A gaming club earns 28 points in one tournament and 40 points in another tournament. Rewrite 28 + 40 using the greatest common factor.

WORK SPACE

ANSWER _____

2 A student saves 45 songs in one playlist and 75 songs in another playlist. Rewrite 45 + 75 using the greatest common factor.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Rewrite 72 + 96 using the greatest common factor. Explain why your factor is greatest by comparing the prime factors of both numbers.

WORK SPACE AND ANSWER

ANSWER KEY

Factor Out Fun

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rewrite 24 + 42 using the greatest common factor.	**6(4 + 7)**
2	Rewrite 35 + 49 using the greatest common factor.	**7(5 + 7)**
3	Rewrite 48 + 60 using the greatest common factor.	**12(4 + 5)**
4	Rewrite 54 + 81 using the greatest common factor.	**27(2 + 3)**
5	Rewrite 56 + 72 using the greatest common factor.	**8(7 + 9)**
6	Rewrite 63 + 90 using the greatest common factor.	**9(7 + 10)**

PART 2 · APPLY IT

1. **4(7 + 10)** The greatest common factor of 28 and 40 is 4. Since 28 = 4 × 7 and 40 = 4 × 10, the sum is 4(7 + 10).
2. **15(3 + 5)** The greatest common factor of 45 and 75 is 15. Since 45 = 15 × 3 and 75 = 15 × 5, the sum is 15(3 + 5).

CHALLENGE

24(3 + 4). 72 = 2 × 2 × 2 × 3 × 3 and 96 = 2 × 2 × 2 × 2 × 2 × 3. Their common prime factors are 2 × 2 × 2 × 3 = 24, so no greater common factor is possible.

Accept equivalent expressions with the same greatest common factor and the addends in either order. For the challenge, students must show that 24 includes all shared prime factors, not only that 24 divides both numbers.