

Factor Pair Quest

Build equal groups with whole numbers.

GRADE 4 • 4.CE.2.e

4.CE.2.e "Determine all factor pairs for a whole number 1 to 100, using concrete, pictorial, and numerical representations."

NAME _____

DATE _____

FIND THE PAIRS

Factor pairs are two whole numbers that can make a total in equal groups. Start with 1, test larger numbers, and stop when the two numbers meet or would repeat a pair. You can picture counters or square tiles arranged in equal rows to check each pair.

WORKED EXAMPLE

Find all factor pairs of 36.

1. Start with the pair 1 and 36.
2. Test 2 and 18, then 3 and 12.
3. Picture 4 rows of 9 squares, then find 6 rows of 6 squares.
4. Stop after 6 and 6 because later pairs repeat.

Answer: (1, 36), (2, 18), (3, 12), (4, 9), (6, 6)

PRACTICE 6 problems

- 1** List all factor pairs of 14.

ANSWER _____

- 2** A rectangle made from 27 square tiles has equal rows. List all possible numbers of rows and tiles in each row.

ANSWER _____

- 3** List all factor pairs of 40.

ANSWER _____

- 4** Imagine 55 counters arranged in equal rows. List all possible row arrangements.

ANSWER _____

- 5** List all factor pairs of 63.

ANSWER _____

- 6** List all factor pairs of 97.

ANSWER _____

APPLY IT Show your work

- 1** A game club has 48 trading cards. The cards will be placed in equal stacks with no cards left over. What are all possible numbers of stacks and cards in each stack?

WORK SPACE

ANSWER _____

- 2** An art club has 72 beads for matching bracelets. They will make the same number of beads on each bracelet, with no beads left over. What are all possible numbers of bracelets and beads on each bracelet?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A school display uses 100 photos in a rectangle with equal rows. List every possible number of rows and photos in each row. Then explain why you stop after the middle pair.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	List all factor pairs of 14.	(1, 14), (2, 7)
2	A rectangle made from 27 square tiles has equal rows. List all possible numbers of rows and tiles in each row.	(1, 27), (3, 9)
3	List all factor pairs of 40.	(1, 40), (2, 20), (4, 10), (5, 8)
4	Imagine 55 counters arranged in equal rows. List all possible row arrangements.	(1, 55), (5, 11)
5	List all factor pairs of 63.	(1, 63), (3, 21), (7, 9)
6	List all factor pairs of 97.	(1, 97)

PART 2 • APPLY IT

- (1 stack, 48 cards), (2 stacks, 24 cards), (3 stacks, 16 cards), (4 stacks, 12 cards), (6 stacks, 8 cards)** Find the factor pairs of 48. Each pair names a possible number of stacks and the number of cards in each stack.
- (1 bracelet, 72 beads), (2 bracelets, 36 beads), (3 bracelets, 24 beads), (4 bracelets, 18 beads), (6 bracelets, 12 beads), (8 bracelets, 9 beads)** Find the factor pairs of 72. Each pair shows a possible number of bracelets and beads per bracelet.

CHALLENGE

(1, 100), (2, 50), (4, 25), (5, 20), (10, 10). Stop after 10 and 10 because any larger number of rows repeats a pair already listed.

Accept pairs written in either order, as long as every pair is included once. Accept words, multiplication statements, or row-by-column descriptions for the equal-group arrangements.