Names (pair) _____ Date _____

Rectangles and Factor Pairs

Example

We can make three different rectangles from 12 equal squares. The sides of each rectangle are factors of 12.



$12 = 1 \times 12 = 2 \times 6 = 3 \times 4$. Factors of 12: $1, 2, 3, 4, 6, 12$.

Remember

Factors come in **pairs**: if $a = b \times c$, then b and c are both factors of a. Every number is divisible by 1 and by itself. A 3×4 rectangle and a 4×3 rectangle are the same (just turned).

1 IN PAIRS On the grid, draw every rectangle made from 18 squares. Write each one as a product.

$18 = \square \times \square$ $\quad$ $18 = \square \times \square$

$18 = \square \times \square$ $\quad$ $18 = \square \times \square$

Factors of 18:

Names (pair) _____ Date _____

2 ON YOUR OWN **A system.** Divide 36 by 1, 2, 3, … in turn. When the pairs "meet", you have found all the factors.

divide by	quotient	no remainder?	factor pair
1	$36 \div 1 =$ ☐	**yes** / **no**	☐ × ☐
2	$36 \div 2 =$ ☐	**yes** / **no**	☐ × ☐
3	$36 \div 3 =$ ☐	**yes** / **no**	☐ × ☐
4	$36 \div 4 =$ ☐	**yes** / **no**	☐ × ☐
5	$36 \div 5 =$ ☐	**yes** / **no**	☐ × ☐
6	$36 \div 6 =$ ☐	**yes** / **no**	☐ × ☐

Why can you stop at 6?

3 ON YOUR OWN Write all the factors of each number.

20: ☐ 13: ☐

16: ☐ 30: ☐

4 IN PAIRS **Discuss.** Does a bigger number always have more factors? Compare 12 and 13, 16 and 17. Which number has an odd number of factors, and why?

The Factors and Prime Factors app · otooly.com/factors

Rectangles mode: choose a number of squares and change how many go in a row. The app tells you when you have found every rectangle.

★ ON YOUR OWN **Exit card.** Write all the factors of 28: ☐