Application Activity

Instructions for Parents: You should encourage your child to play with the application activity as long as they are happily engaged and making progress, but not every problem needs to be solved completely. Many problems have extensions that encourage open-ended exploration. Feel free to read the instructions with your child and make sure they understand. However, all answers given below should be the sole work of the applicant. If your child has questions regarding the instructions below, or would like clarification on what sort of response to submit, please contact us at camplemma@proofschool.org.

Presto Digit

In each puzzle below, the goal is to move exactly one digit to a different part of the equality to make a true statement. You will never need to move or alter the $+$, $-$, $\times$, or $=$ symbols. For instance, the puzzle below can be solved by moving the 7 in front of the 3, as shown.

$$8\mathbf{7} + 65 = 3 \quad \longrightarrow \quad 8 + 65 = \mathbf{7}3$$

Solve as many as you can! It's fine to only finish a couple.

A $16 + 29 = 5$

B $4 - 2 = 319$

C $3 \times 14 = 52$

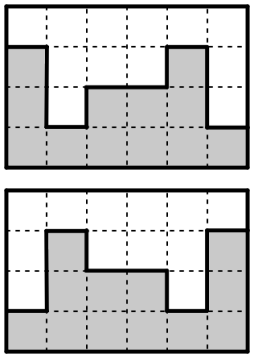
D $34 + 19 = 62$

E $23 - 4 = 5$

F $1 \times 3 = 489$

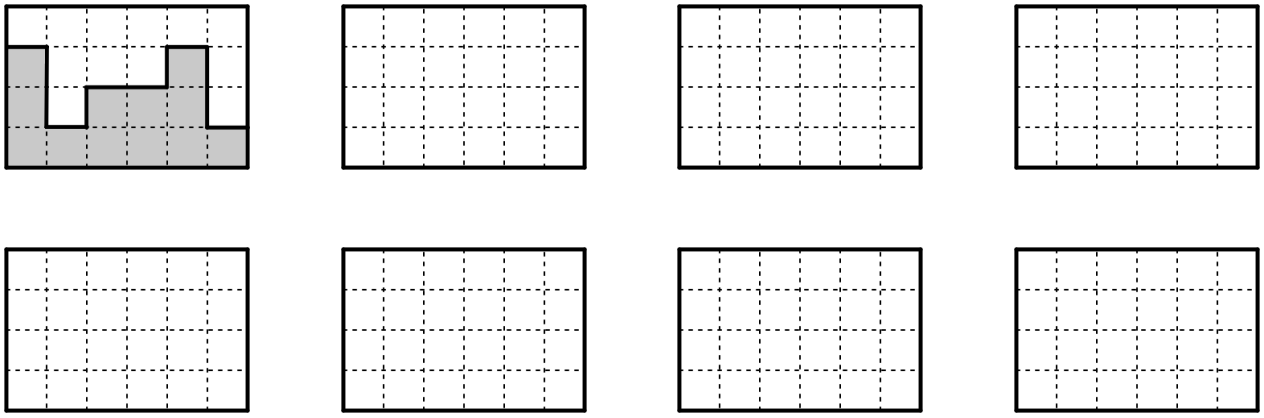
Hidden Halves

Let's cut a 4×6 rectangle along the grid lines into two congruent pieces.

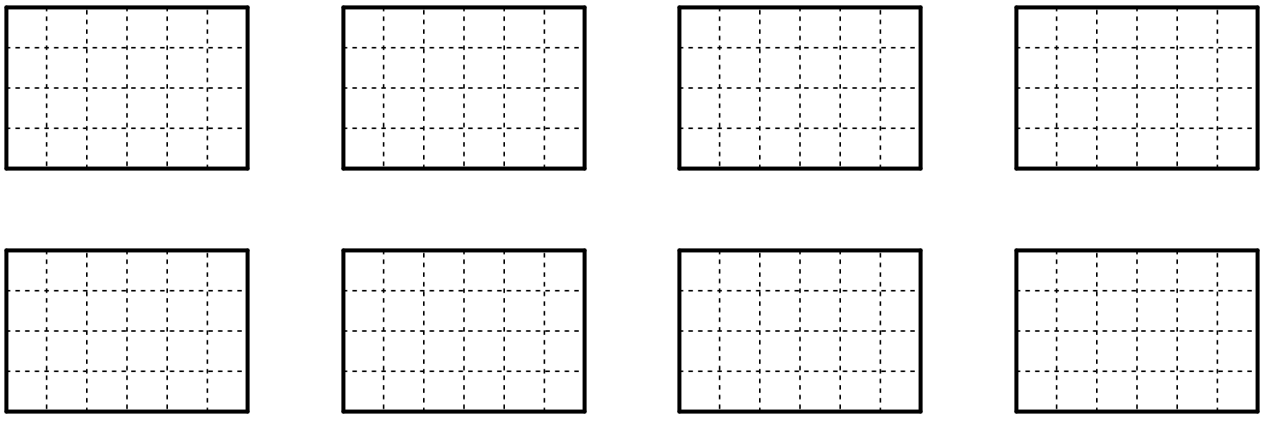


- This means you cut the rectangle along the dotted lines to create two pieces, which match perfectly when laid on top of one another.
- The top picture shows one way of doing this.
- The bottom picture looks different, but actually it's **the same**. (Those are the same shapes as in the top picture, flipped over.)

Try to find eight different ways of cutting a 4×6 rectangle into two congruent pieces! The first one has been done for you. (It's the example from above.)



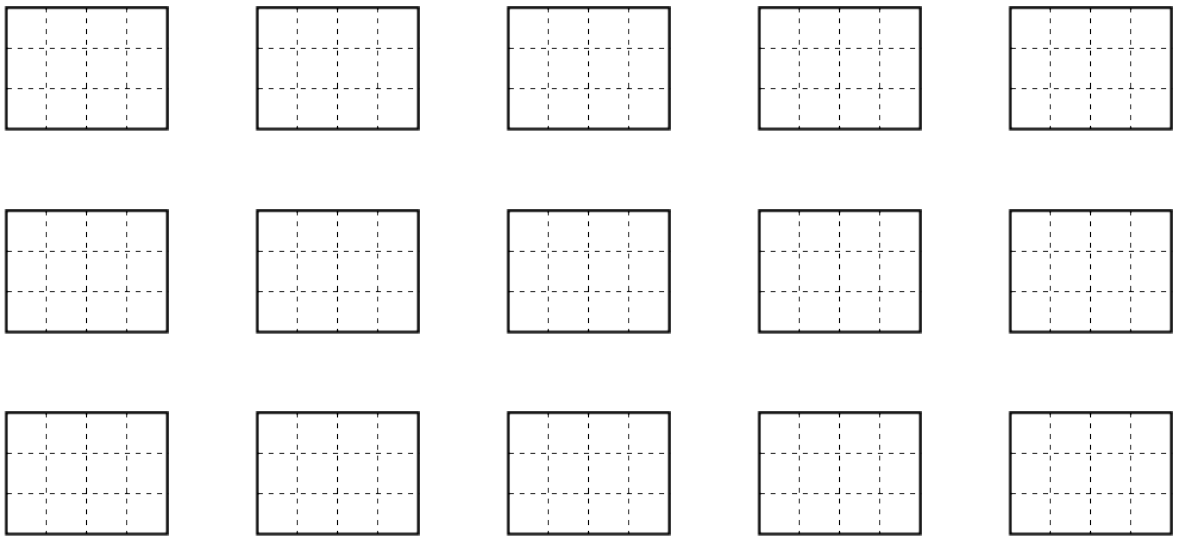
OPTIONAL: *Here are more rectangles, in case you want to keep going or make a mistake above.*



More Hidden Halves Challenges

Challenge 1: In the space below, describe in words a process that a friend could follow to design their own hidden halves.

Challenge 2: How many different ways can you cut a 3×4 grid into two congruent pieces? Try to find the complete list.



Challenge 3: Explain in words why the list you made in Challenge 2 is complete.

Challenge 4: Repeat the steps of Challenges 2 and 3, but this time with the 4×4 grids shown below: