

FUNCTION PLACEMATS

Purpose. This activity is intended to review properties of functions, including:

- whether a relation gives a function;
- whether a function is even, odd, or neither;
- values of functions at particular points in the domain;
- domain and range;
- multiple representations of functions;
- whether a function is one-to-one.

Preparation (before class) and implementation (in class). Print one set of worksheets for each group of students. (We suggest groups of four.) The sheets do not need to be cut apart. Each sheet will be used as a “placemat” for the placement of function “stickers.”

Each group also should get a complete set of functions stickers, cut along the lines provided. If you are able to, you may create actual stickers, using vinyl that is reusable. If you do not have funds/access to vinyl, you may just use paper, and have the students place the function stickers appropriately on the placemats.

You may choose to laminate the placemats and the function stickers, so they can be reused. Sandwich bags or rubber bands may be used to keep each set together.

Once each group has a set of placemats (a complete set is the full three pages) and a complete set of function stickers, they are ready to get started.

Here are suggested directions to give the students:

“At your table, you will find a set of placemats and words that describe what is given in each space on the placemat. Work together in your group to place each sticker in an applicable position on the placemats. Each sticker will be used once and only once. There are some stickers that will appear more than once. This means, for example, that there are multiple function where $f(1) = 2$.”

Debrief. If possible, leave some time after the activities are completed for discussion. Some questions that might be discussed are:

- What was your strategy for placing the stickers on the placemats?
- Which stickers were easiest for you to place and why?
- Which stickers were hardest for you to place, and why?
- In your own words, what is a function?

- How can something fail to be a function?
- What is an odd function?
- What is an even function?
- What does $f(1) = 2$ mean?
- What does $f(x) = a$ mean?
- What is the domain of a function?
- What is the range of the function?
- What does it mean for a function to be periodic?
- Did you have any spaces without any stickers? Why do you think that is the case?
- What did you learn about the absolute value of x ?
- Provide a graphical example of something that is not a function.
- Provide an example of a function described in words.
- Provide a table that gives an example of something that is not a function.
- What questions do you have after completing this activity?