

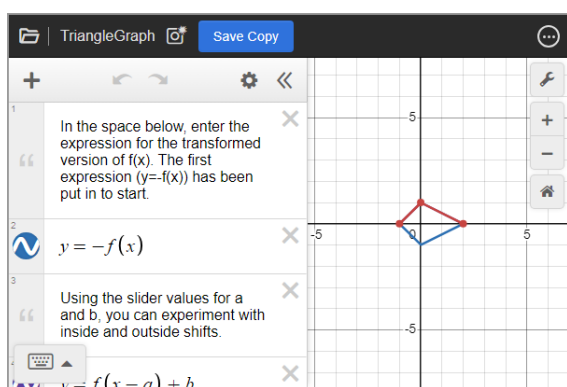
# Math 121 Graphical Transformation Worksheet

## Objectives

- Include an interactive (Desmos) in an activity with a QR code available for the print version.
- Note how to include QR codes for interactives in print versions of worksheets.
- Discuss creating individual pdf versions of worksheets to hand out in class.

This activity asks students to describe the effect of different affine transformation of functions after experimenting with Desmos. The pre-built Desmos graph appears in the html version while a QR code is created in the print version.

1. Use the interactive Desmos graph given above with sliders for  $a$  and  $b$  to describe the effect of each algebraic substitutions on the graph of  $y = f(x)$ .



Standalone

**Figure 1** Note: frhvlgrqhj is the last part of the Desmos graph. When you modify the Desmos graph and re-save it, that may change the url.

- (a)  $f(-x)$  has the same graph as  $f(x)$ , except \_\_\_\_\_.
- (b)  $-f(x)$  has the same graph as  $f(x)$ , except \_\_\_\_\_.
- (c)  $f(x - a)$  has the same graph as  $f(x)$ , except \_\_\_\_\_.
- (d)  $f(x + a)$  has the same graph as  $f(x)$ , except \_\_\_\_\_.
- (e)  $f(x) + b$  has the same graph as  $f(x)$ , except \_\_\_\_\_.
- (f)  $f(x) + b$  has the same graph as  $f(x)$ , except \_\_\_\_\_.

## Interactive Remarks

**Remark 2** Obviously, interactive elements don't work very well in printed worksheets. When you print a worksheet you can have it include a static screenshot of the given interactive as well as a QR code to the interactive (still within your pretext book). To do this, you need to edit the file `publication-standalone.ptx`. In this file, find the `html` section and edit the `baseurl` entry to be the url of your deployed Pretext project with `/worksheets` at the end.

**Remark 3** The ability to print directly from html versions of worksheets isn't great. Hence, if you want to hand out worksheets in class, you will need to do the following:

- Uncomment the `pretext` and `article` tags at the top and bottom of the worksheet's ptx file.
- Run the command `pretext build pdf -i ./source/activities/121samplewksht.ptx` (change file name to your worksheet) to generate a pdf version and print the worksheet you want.

Now your worksheet will appear in `output/pdfs`.

**Remark 4** For further discussion of interactive elements, go to [pretextinteractiveelementexamples](#).