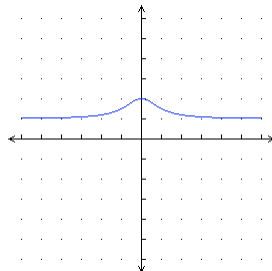
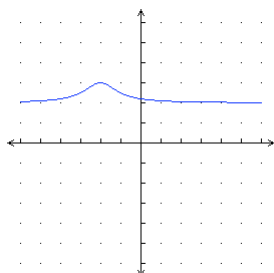


TASK 1.2.5: REFLECT AND APPLY
Solutions


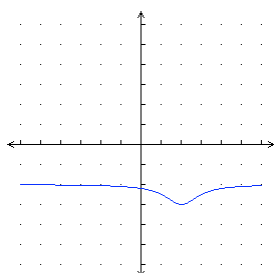
$$\text{Let } f(x) = \frac{x^2 + 2}{x^2 + 1}$$

Write the function rule for g in terms of f **and** in terms of x for each of the following graphs:

 $g(x)$


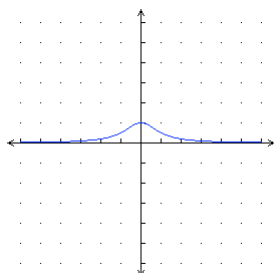
$$1. \quad g(x) = f(x + 2) + 1$$

$$g(x) = \frac{1}{x^2 + 4x + 5} + 2$$

 $g(x)$


$$2. \quad g(x) = -f(x - 2) - 1$$

$$g(x) = \frac{-1}{x^2 - 4x + 5} - 2$$

 $g(x)$


$$3. \quad g(x) = f(x) - 1$$

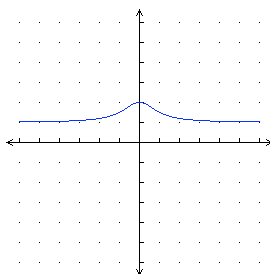
$$g(x) = \frac{1}{x^2 + 1}$$

Math Notes

The participants will use the key features of the graph (asymptote and “vertex”) to determine qualitatively what the new function will be in terms of the old one. This is an important task in that it can help participants see how to create functions quickly with desired properties (asymptotes at a particular place, etc.) from an easy to express parent function.

Teaching Notes

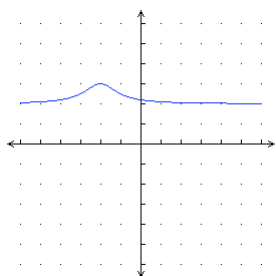
This task should be assigned as an assessment or homework to be collected.

TASK 1.2.5: REFLECT AND APPLY

Let $f(x) = \frac{x^2 + 2}{x^2 + 1}$

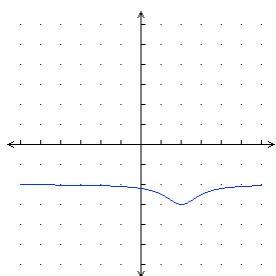
Write the function rule for g in terms of f **and** in terms of x for each of the following graphs:

$g(x)$



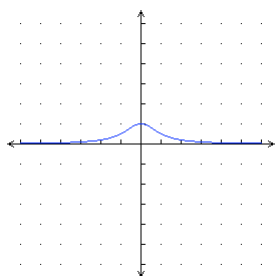
1.

$g(x)$



2.

$g(x)$



3.
