

Assignment

Write

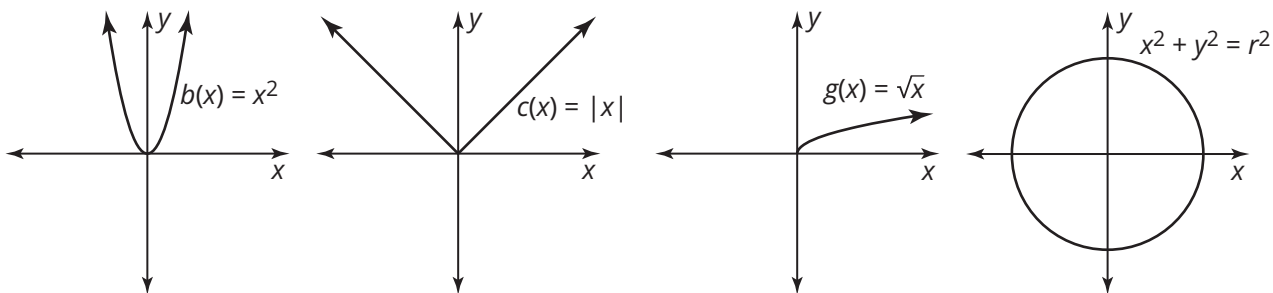
Given $g = f(x)$, describe the effects of the A -, B -, C -, and D -values on the function
 $g(x) = A \cdot f(B(x - c)) + D$

Remember

The graph of a function with a restricted domain is one in which only the y -values mapped to included domain x -values are shown.

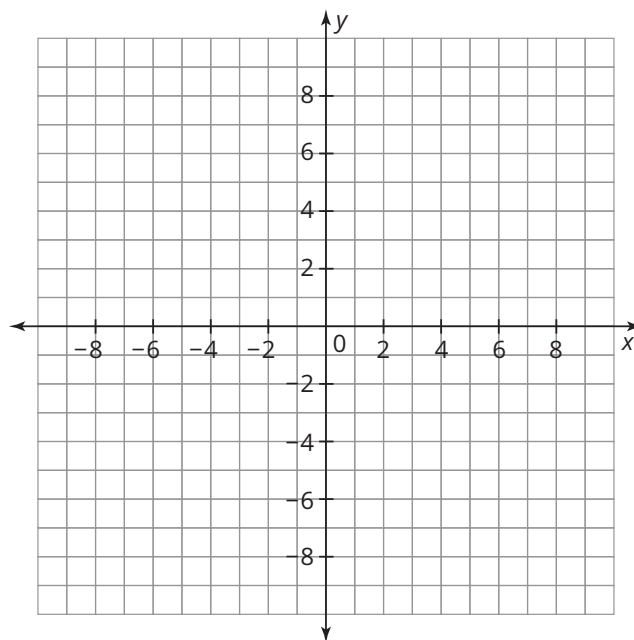
Practice

1. Consider the relations shown.

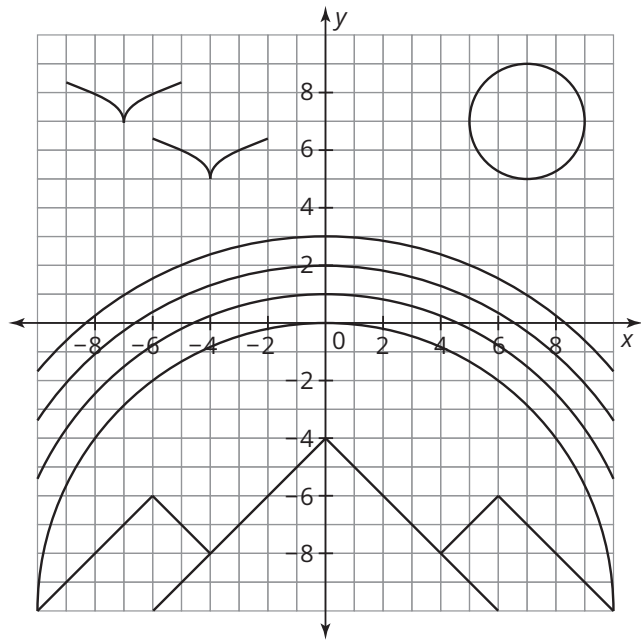


a. Graph each relation to create a picture.

$y = g(x + 1) + 7, -1 \leq x \leq 1$	$y = g(x) + 7, 0 \leq x \leq 2$	$y = g(x - 1) + 7, 1 \leq x \leq 3$
$y = \frac{1}{4}b(x) - 2, -4 \leq x \leq 4$	$y = \frac{1}{8}b(x), -4 \leq x \leq 4$	$y = c(x) + 1, -1 \leq x \leq 1$
$(x + 2)^2 + (y - 4)^2 = 1$	$(x - 2)^2 + (y - 4)^2 = 1$	$x^2 + (y - 2)^2 = 36$



- b. Write the equations of the 12 relations used to create this picture. Include any restrictions on the domains.



Stretch

Create a design using a transformation of each equation from the Getting Started. Write each equation and include its corresponding domain.

Review

- Alyssa and Jade both swim on their high school swim team. At the first swim meet, Alyssa swam the 50 yard freestyle in 31.74 seconds, and she has steadily decreased her time by 1.2% each race. In Jade's 1st meet, she swam the 50 yard freestyle in 30.22 seconds and she has steadily decreased her time in the event by 1.1% each race.
 - Which of the 2 swimmers had the fastest time in their 10th race? Round decimals to the nearest hundredth.
 - Which of the 2 swimmers had the fastest total time if they combine each of their 10 freestyle times? Round decimals to the nearest hundredth.
- Use the properties of logarithms to rewrite each logarithmic expression in expanded form.
 - $\ln(j^2k^{10})$
 - $\log\left(\frac{4x^3}{3y^4}\right)$
- Use the properties of logarithms to rewrite each logarithmic expression as a single logarithm.
 - $6 \ln x + \ln 6 - 3 \ln y$
 - $5(2 \log x + \log 2) - 12 \log x$
- State the domain for the rational function $f(x) = \frac{x+3}{x^2-9}$. Explain your reasoning.