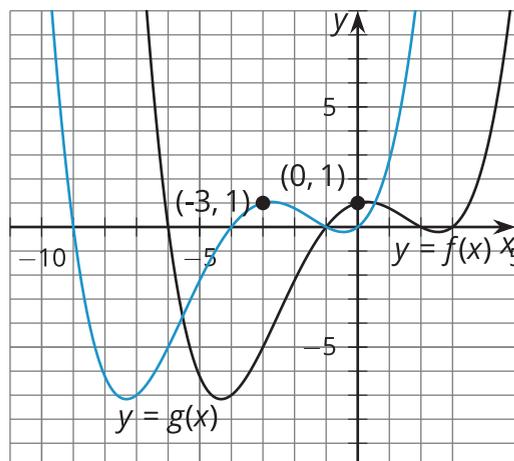


Unit 5 Lesson 3 Cumulative Practice Problems

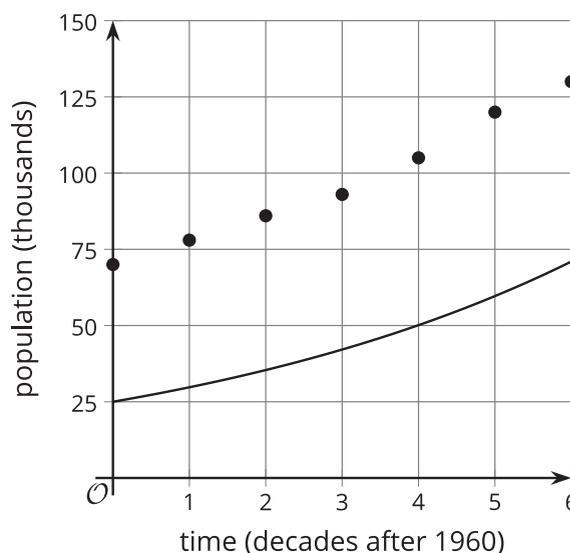
1. Here is a graph of f and a graph of g . Express g in terms of f using function notation.



2. Tyler leaves his house at 7:00 a.m. to go to school. He walks for 20 minutes until he reaches his school, 1 mile from his house. The function d gives the distance $d(t)$, in miles, of Tyler from his house t minutes after 7:00 a.m.
- Explain what $d(5) = 0.25$ means in this context.
 - On snowy days, Tyler's school has a 2 hour delayed start time (120 minutes). The function s gives Tyler's distance $s(t)$, in miles, from home t minutes after 7:00 a.m. with a 120 minute delayed start time. If $d(5) = 0.25$, then what is the corresponding point on the function s ?
 - Write an expression for s in terms of d .
 - A new function, n , is defined as $n(t) = d(t + 60)$ explain what this means in terms of Tyler's distance from school.

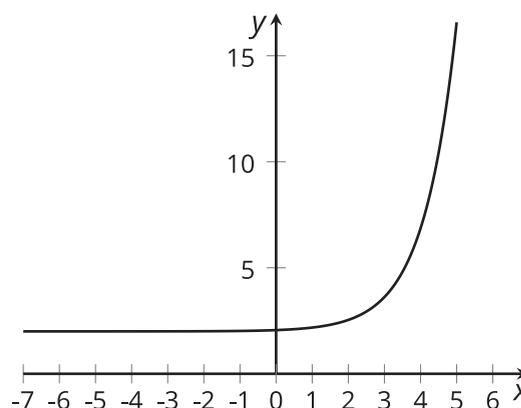
3. *Technology required.* Here are the data for the population f , in thousands, of a city d decades after 1960 along with the graph of the function given by $f(d) = 25 \cdot (1.19)^d$. Elena thinks that shifting the graph of f up by 50 will match the data. Han thinks that shifting the graph of f up by 60 and then right by 1 will match the data.

- What functions define Elena's and Han's graphs?
- Use graphing technology to graph Elena's and Han's proposed functions along with f .
- Which graph do you think fits the data better? Explain your reasoning.

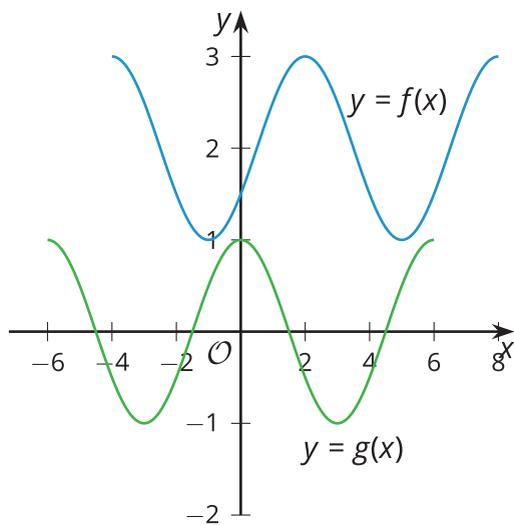


4. Here is a graph of $y = f(x + 2) - 1$ for a function f .

Sketch the graph of $y = f(x)$.



5. Describe how to transform the graph of f to the graph of g :

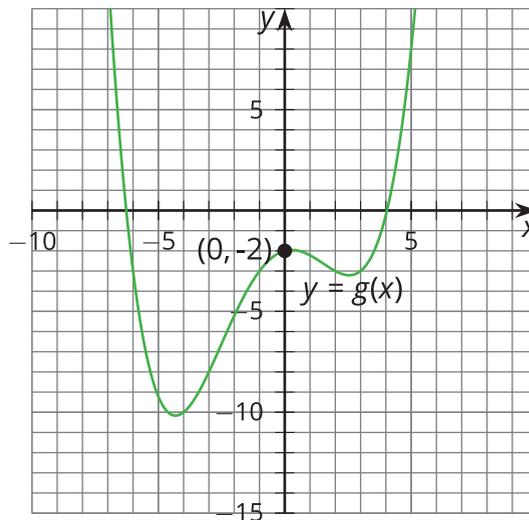
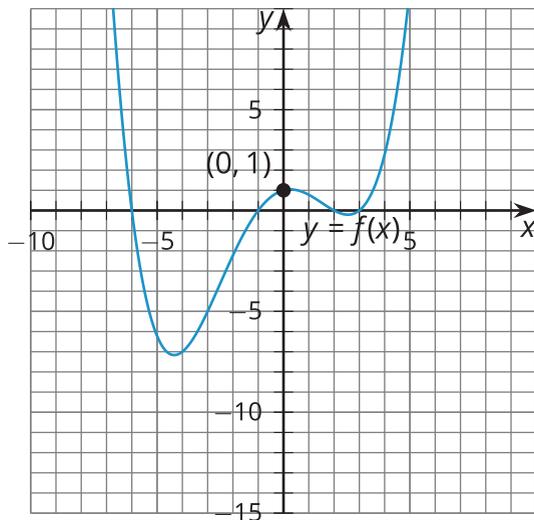


a. using only translations

b. using a reflection and a translation

(From Unit 5, Lesson 1.)

6. Here is a graph of function f and a graph of function g . Express g in terms of f using function notation.



(From Unit 5, Lesson 2.)