7.3B Composition of Functions

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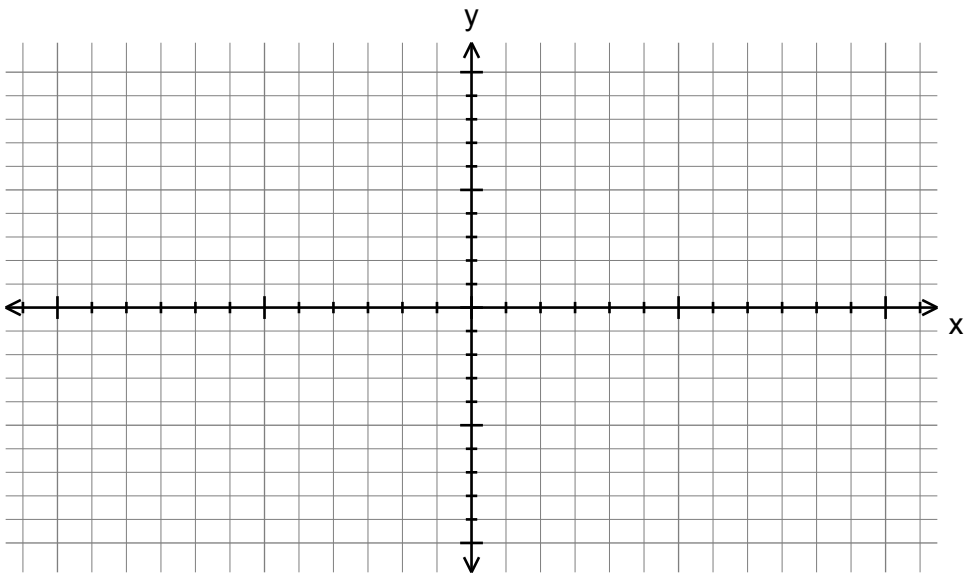
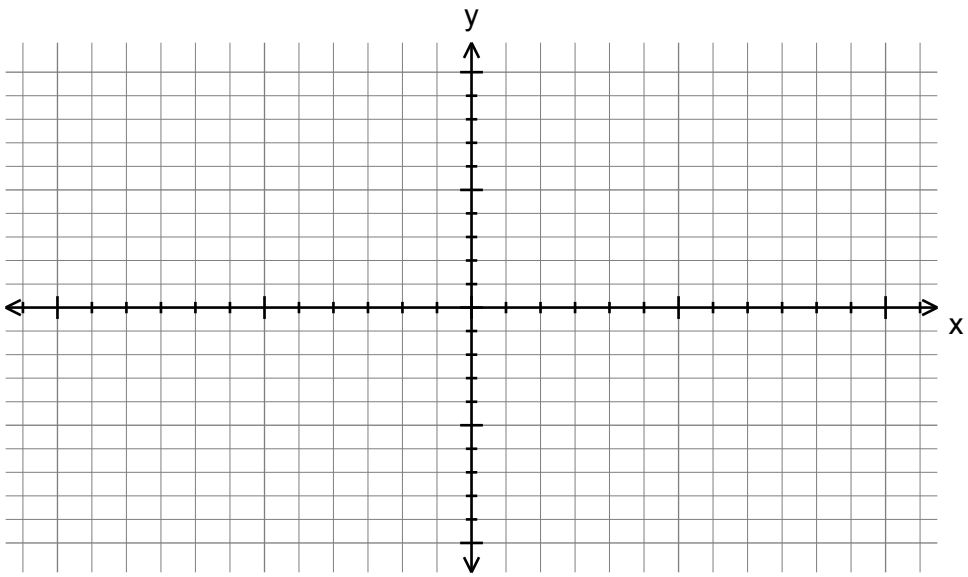
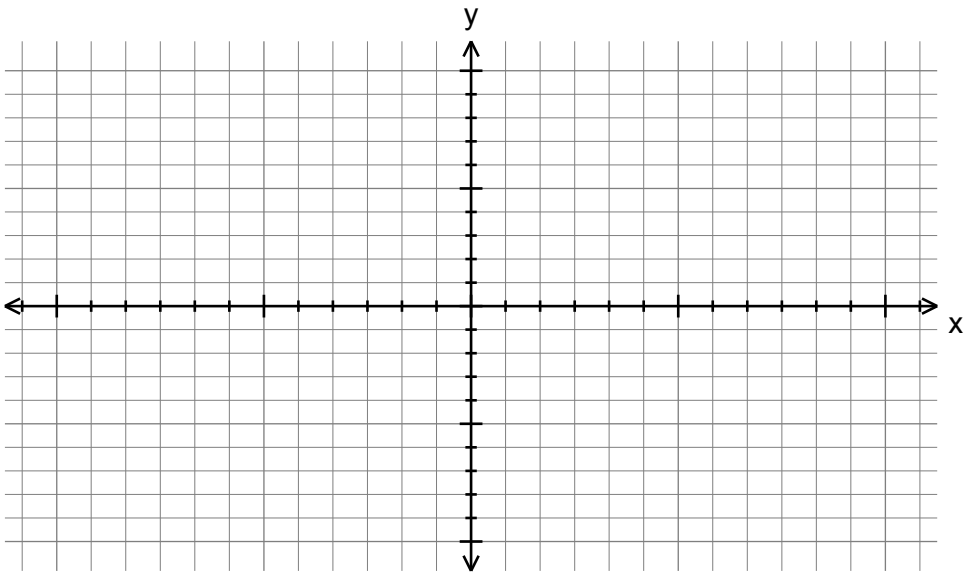
1. a) Compare the graph of $f(x) = x^2$ with the graphs of $(f \circ g)(x)$ and $(g \circ f)(x)$, where $g(x) = 2(x - d)$, for various values of *d*. Describe each composed function in terms of **transformations** of *f(x)*.



b) Compare the graph of $f(x) = \sin x$ with the graphs of $(f \circ g)(x)$ and $(g \circ f)(x)$, where $g(x) = a(x - d)$, for various values of *a* and various values of *d*. Describe each composed function in terms of **transformations** of *f(x)*.



c) Compare the graph of $f(x) = \log x$ with the graphs of $(f \circ g)(x)$ and $(g \circ f)(x)$, where $g(x) = -\frac{1}{2}(x - d)$, for various values of *d*. Describe each composed function in terms of **transformations** of *f(x)*.



~~ Answer the following questions in your notebook. ~~

2. Choose one value of each parameter to verify each solution for question 1 algebraically.

3. Given $f(x) = \tan x$ and $g(x) = a(x - d)$, what values of *a* and *d* will result in $f(x) = (f \circ g)(x)$?

Homework:

Page 552 #5 aef, #6abc → Describe in terms of transformations and graph
#9
#14 (if you didn't already do it successfully!)
#16