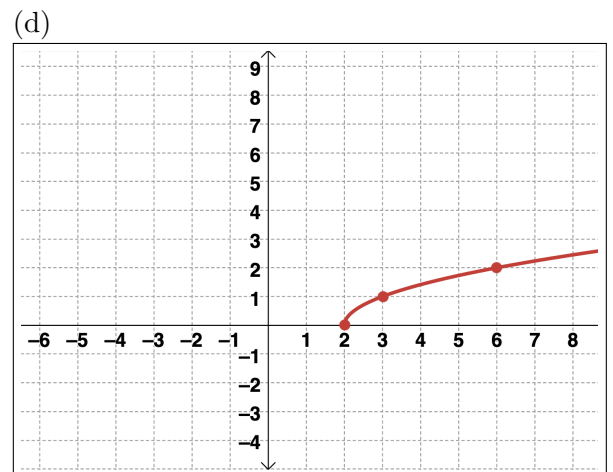
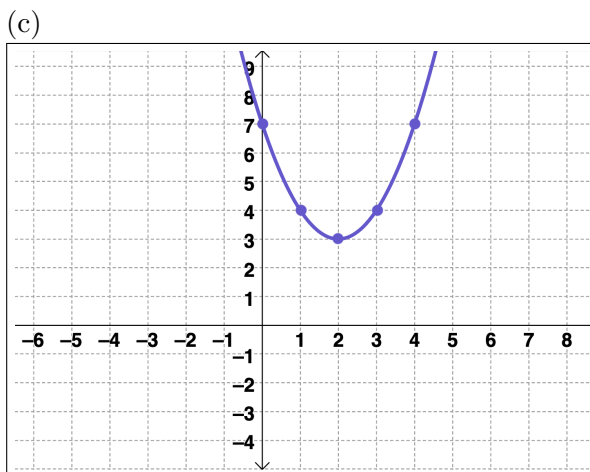
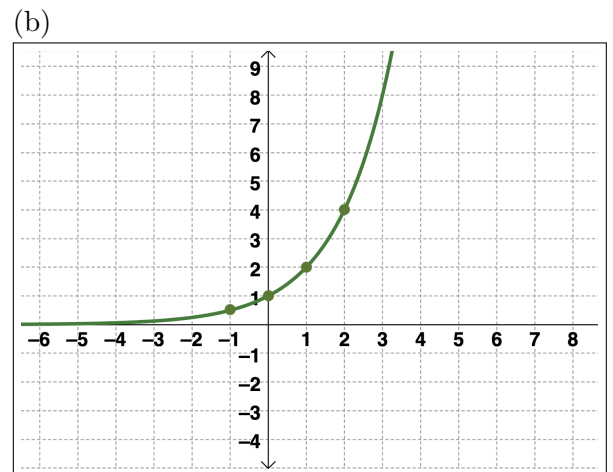
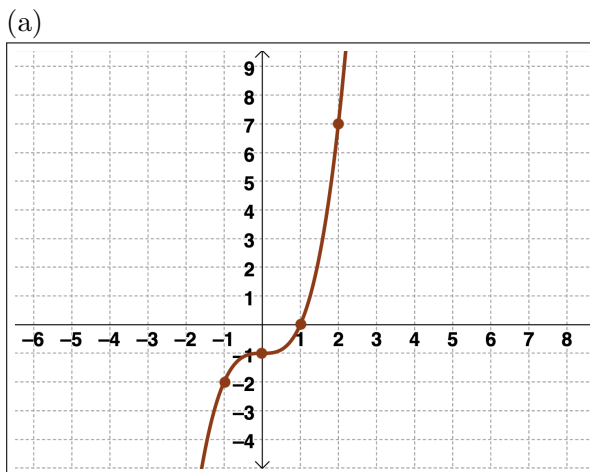




WIR: Sections 5.7 and 5.8

Section 5.7

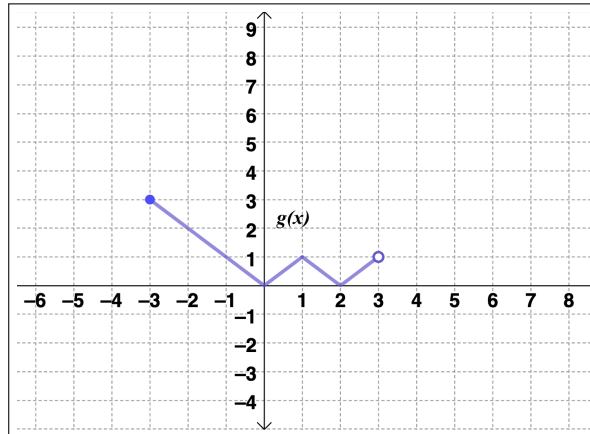
- (1) For each graph given below, state the parent function and then identify the transformations of the parent function and write the resulting function.



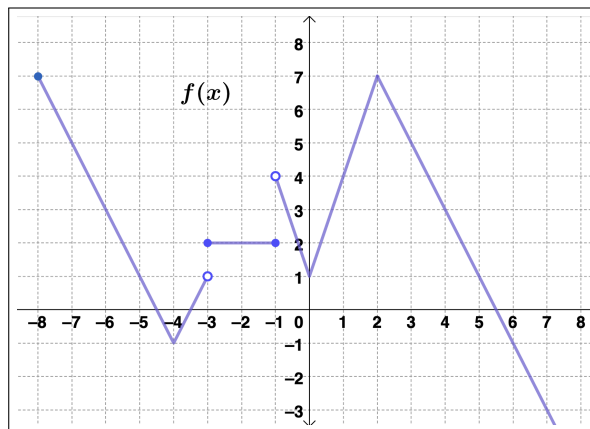
- (2) State the parent function for $g(x) = -2 \cdot e^{x+3}$ and then the list of transformations (in the correct order) needed to graph the function.
- (3) Write the equation of the function, $g(x)$, whose graph is the result of $f(x) = \sqrt{x}$ undergoing the transformation of shifted left 3 units, vertically compressed by a factor of 2, and then shifted down 8 units.



- (4) Given the graph of $g(x)$ below, draw the graph of $2g(x - 1) + 3$.



- (5) Given $g(x) = -x^2 - 1$, $h(x) = |x + 1|$ and the graph of $f(x)$ below, find
- (a) $f(f(-5))$
 - (b) $(g \circ f)(3)$
 - (c) $(f \circ g)(0)$
 - (d) $g(h(2))$
 - (e) $(g \circ f \circ h)(-3)$



Section 5.8

- (6) Without using a calculator, evaluate $7^{2 \log_7(4)}$.
- (7) Express $\frac{1}{2} \log_4(x + 1) + \log_4(x) - 4 \log_4(2x^2 - 1)$ as a single logarithm. When necessary, assume all variables represent positive real numbers.
- (8) Use the properties of logarithms to fully expand and simplify the expression $\ln \left(\sqrt[3]{\frac{2x^3}{e^2y^3}} \right)$. When necessary, assume all variables represent positive real numbers.



- (9) Use properties of logarithms to determine whether each statement below is true or false.
- (a) $\log_4\left(\frac{16}{x}\right) = 2 - \log_4(x)$
 - (b) $\frac{\ln(5x)}{\ln(10x)} = \ln\left(\frac{1}{2}\right)$
 - (c) $\log(10)^{2x} = xe^{\ln(2)}$
- (10) For each of the logarithmic functions below, state the (a) domain, (b) range, (c) end behaviors (i.e., behavior of the function values as $x \rightarrow \pm\infty$), (d) x -intercept(s), and (e) y -intercept.
- (a) $f(x) = \log_{\frac{1}{2}}(x)$
 - (b) $g(x) = \ln(x)$
- (11) State the domain of each algebraic function, using interval notation.
- (a) $h(x) = \frac{\ln(x+2)}{e^{\sqrt{3x-1}}}$
 - (b) $g(x) = \ln(4x-8) + \ln(x+1)$
 - (c) $f(x) = \frac{2^x}{\ln(x)-1}$
- (12) Solve each of the following for x . Leave your answers in exact form.
- (a) $3^{x-4} = 5$
 - (b) $2e^{2x} - e^x = 3$
 - (c) $\log_3(4-2x) + \ln(e)^2 = \log_3(x-1)$
 - (d) $\log_5(8-x) = \log_5(48) - \log_5(-x)$