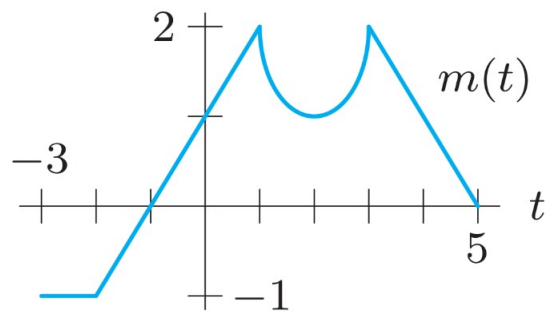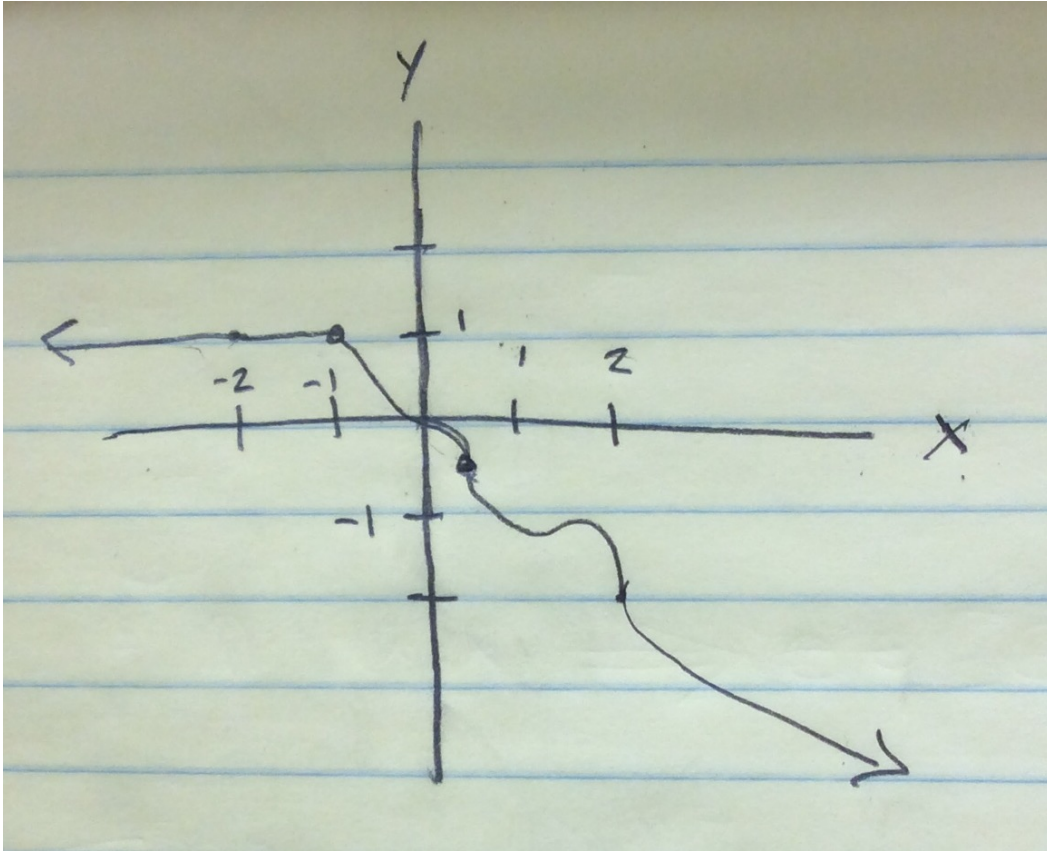# Worksheet 1

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In Exercises 4–7, use Figure 1.37 to graph the functions.

Figure 1.37

4. $n(t) = m(t) + 2$ **5.** $p(t) = m(t - 1)$

6. $k(t) = m(t + 1.5)$

7. $w(t) = m(t - 0.5) - 2.5$

18. Let p be the price of an item and q be the number of items sold at that price, where $q = f(p)$. What do the following quantities mean in terms of prices and quantities sold?

(a) $f(25)$

(b) $f^{-1}(30)$

For the functions f and g in Exercises 8–11, find

(a) $f(g(1))$ **(b)** $g(f(1))$ **(c)** $f(g(x))$

(d) $g(f(x))$ **(e)** $f(t)g(t)$

8. $f(x) = x^2, g(x) = x + 1$

9. $f(x) = \sqrt{x + 4}, g(x) = x^2$

10. $f(x) = e^x, g(x) = x^2$

11. $f(x) = 1/x, g(x) = 3x + 4$

64. A tree of height y meters has, on average, B branches, where $B = y - 1$. Each branch has, on average, n leaves, where $n = 2B^2 - B$. Find the average number of leaves of a tree as a function of height.

46. $f(n)$ is the number of students in your calculus class whose birthday is on the nth day of the year.