—**Homework 2**—

#35 Determine the zeroes of $D(x) = x^2 - 8x + 5$. (Hint: Use the quadratic formula.)
#36 Determine the zeroes of $B(y) = y^2 + 2y - 5$. (Hint: Use the quadratic formula.)
#39 Determine the zeroes of $R(t) = \sqrt{16 - t^2}$.
#40 Determine the zeroes of $R(x) = \frac{3}{4}\sqrt{x^2 - 12}$.
#44 A ball is thrown upward from an initial height of h_0 feet with an initial velocity of v_0 feet per second. Its height (in feet) above ground level, t seconds after it is thrown, is given by the function

$$h(t) = -16t^2 + v_0 t + h_0.$$

Suppose that a ball is thrown upward from a tower such that $v_0 = 64$ and $h_0 = 24$.
(a) How high was the ball after 3 seconds?
(b) When did the ball hit the ground (to the nearest 0.01 second)?
(c) Compute

$$\frac{h(2) - h(0)}{2}.$$

What is the significance of this number?
#45 A ball is dropped from the top of the Empire State Building (1250 feet tall) in New York City. Its height t seconds after it is dropped is given by $h(t) = 1250t - 16t^2$. After t_0 seconds, it hits the ground.
(a) What is the value of t_0 (to the nearest 0.01 second)?
(b) Compute

$$\frac{h(t_0) - h(0)}{t_0} \quad \text{and} \quad \frac{h(t_0) - h(t_0 - 1)}{1}.$$

Suppose that you were standing on the ground, waiting to catch the dropped ball. Which of these two numbers would be most important to you?
In exercises 46-49, a table of values has been generated with function f of the form $f(x) = nx$, $f(x) = n/x$, $f(x) = x^n$, or $f(x) = n^x$ (n is constant). Determine f for each table.

#48

x	0	1	2	3	5
$f(x)$	1	3	9	27	243

#49

x	4	6	10	12	16
$f(x)$	6	9	15	18	24