

# Building Functions Worksheet 2

1. If a ball rolls down a hill and goes 8 feet in the first second, 16 feet in the next and 32 feet in the third, how far will it fall after 6 seconds?
2. Write an explicit and a recursive function that describes the sequence 1, 3, 5, 7, 9...
3. Find the twenty-third term of the arithmetic sequence 1, 5, 9....
4. If the first term of a sequence is 2 and the third and fourth terms are 8 and 16, what is the second term?
5. Your allowance increases by \$2 every year and you start at \$20 per month. Write your allowance as a function of years.
6. If the explicit function that describes your cable bill is  $c(y) = 50 \times 1.02^{y-1}$  after  $y$  years, what would be an equivalent recursive function?
7. If a bird population was 5 million in one year and the projected population, based on a geometric sequence, after 25 years was 6.7 million, what would the annual growth rate be?
8. What is the explicit function of the sequence given by the function  $f(n) = f(n-1) + 3$  if  $f(1) = 0$ ?
9. Write the recursive function  $f(n) = (f(n-1))^2$  with  $f(1) = 2$  as an explicit function.
10. Find both the explicit and recursive formulas of the geometric sequence 2, 2.5, 3.125...