## 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 $1,5,9 \ldots$
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...
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