Name Quang Huynh Date 4/18/20

Algebra 2H Unit 11: Sequences and Series Notes 28-30

Example 28 Electra earns $33,000 in her first year of teaching and earns a 4% increase in each successive year.

1. Write a geometric series formula, *Sn*, for Electra’s total earnings over *n* years.

Sn=33,000(1.04)n-1

1. Use this formula to find Electra’s total earnings for her first 15 years of teaching, to the nearest cent.

Sn=33,000(1.04)15-1

Sn=33,000(1.73)

Sn=57,090

Example 29 A person places 1 penny in a piggy bank on the first day of the month, 2 pennies on the second day, 4 pennies on the third, and so on. Will this person be a millionaire at the end of a 31 day month? Show the calculations that lead to your answer.

Sn=2n-1

S31=231-1

S31=230

S31= 1,073,741,824 pennies

Yes, they will be a millionaire. They will have $10,737,418.24 dollars.

Example 30 Devin began running a month ago to get back in shape. The first day he ran 0.5 miles. Each day after that he ran 10% more than the previous day for a total of 30 days. Use the formula for the sum a geometric series to calculate the total distance Devin ran over the 30 days. Round to the nearest thousandth of a mile.

S30=[0.5-0.5(1.1)30]/(1-1.1)

S30=[0.5-0.5(17.449)]/(1-1.1)

S30=(0.5-8.725)/(1-1.1)

S30=(-8.225)/(-0.1)

S30= 82.25 miles