Name

Class

Date

Geometric Series

**Evaluate each finite series for the specified number of terms.
 1.** 40 + 20 + 10 +…; *n* = 10 **2.** 4 + 12 + 36 + …; *n =* 15

**3.** 15 + 12 + 9.6 + …; *n* = 40 **4.** 27 + 9 + 3 + …; *n* = 100

**5.** 0.2 + 0.02 + 0.002 + …; *n* = 8 **6.** 100 + 200 + 400 + …; *n =* 6

**7.** This month, your friend deposits $400 to save for a vacation. She plans to deposit 10% more each successive month for the next 11 months. How much will she have saved after the 12 deposits?

**8.** Suppose your business made a profit of $5500 the first year. If the profit increased 20% per year, find the total profit over the first 5 yr.

**9.** The end of a pendulum travels 50 cm on its first swing. Each swing after the first, it travels 99% as far as the preceding swing. How far will the pendulum travel before it stops?

**10.** The first year a toy manufacturer introduces a new toy, its sales total $495,000. The company expects its sales to drop 10% each succeeding year. Find the total expected sales in the first 6 years.

**11.** A man borrows a loan of $1,000,000 for a house from a bank and likes to pay back in 10 years (120 monthly instalments), the first instalment being paid at the end of first month and compound interest being calculated at 6% per annum. Find the amount of each instalment.

**12.** You take out a loan for $50000 at an annual interest rate of 12%. If you want to pay off the loan in exactly 30 years, how much would you have to pay each month?

**13.** You are looking at a mortgage for a $160,000 home. You want a 15 year mortgage, which has an APR of 4.264%. Calculate your payment, then find out home much money you paid in interest.

**14.** You are looking at a 2015 Toyota Corolla that costs $10,797. You get approved for a 4.14% interest rate on a 5 year loan. Determine the monthly payment, then calculate the total amount you will pay in interest.

**15.** You are looking at a 2015 Ford F-150 that costs $15,411. You get approved for a 4.14% interest rate on a 5 year loan. Determine the monthly payment, then calculate the total amount you will pay in interest.

**16.** You are looking at a 2015 Toyota Corolla that costs $10,797, but you have poor credit (below 600). You get approved for a 15.72% interest rate on a 5 year loan. Determine the monthly payment, then calculate the total amount you will pay in interest.

**17.** You are looking at a 2015 Ford F-150 that costs $15,411, but you have poor credit (below 600). You get approved for a 15.72% interest rate on a 5 year loan. Determine the monthly payment, then calculate the total amount you will pay in interest.

**Activity:**

Based on recent mortgage rates (yes, these are real mortgage rates offered right now), let's say that someone with poor credit (620 – 639) may be able to get a 30-year fixed rate loan at 5.481% APR. But with above-average credit (680 – 699) they are quoted a 4.974% APR. With excellent credit (740 and above), though, the best available rate is 4.025% APR.

Compare the payments and total interest on the life of a 30 year mortgage, on a three bedroom, two bathroom home that costs $189,000.