

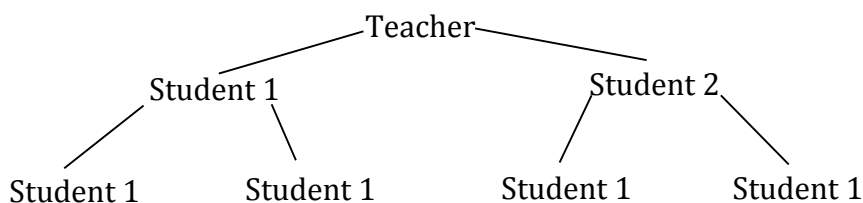
### Geometric Series Assignment

1. Determine the sum of the first 5 terms of each geometric series.
  - a)  $2 + 10 + 50 + \dots$
  - b)  $3 + 6 + 12 + \dots$
  - c)  $5 + 15 + 45 + \dots$
  
2. Determine the sum of the first 10 terms of each geometric series.
  - a)  $5 - 10 + 20 - 40 + \dots$
  - b)  $1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + \dots$
  - c)  $5 - \frac{5}{2} + \frac{5}{4} - \frac{5}{8} + \dots$
  
3. A doctor prescribes 200mg of medication on the first day of treatment. The dosage is halved on each successive day. The medication lasts for seven days. To the nearest milligram, what is the total amount of medication administered?
  
4. A contest winner is given a choice of two prizes:
 

**Prize 1:** We will give you \$1 today, \$2 a year from now, \$4 two years from now, and so on, for 20 years. Each year you will receive twice as much as the year before.

**Prize 2:** We will give you \$1 000 000 today.

  - a) Calculate the total value of the money the winner receives if she chooses Prize 1.
  - b) Which prize would you choose? Explain.
  
5. Here are 3 levels in a school trip phone tree.



- a) At what level are 64 students contacted?
- b) How many students are contacted on the 8<sup>th</sup> level?
- c) By the 8<sup>th</sup> level, how many students in total have been contacted?
- d) By the n<sup>th</sup> level, how many students have been contacted?
- e) Suppose there are 300 students in total. By what level will all students have been contacted?

**Answers**

1a) 1562   b) 93   c) 605                      2a) -1705      b) about 1.50      c) about 3.33  
3. 397 mg                                      4a) \$1 048 571    b) Answers may vary  
5a) 7<sup>th</sup> level   b) 128   c) 254   d)  $2^{n-1}$    e) 9<sup>th</sup> level