**Applications of Sequences and Series /19**

**Short Answer**

*For each arithmetic series, determine*

***a)*** *an explicit formula for the general term in simplest form*

***b)*** *a formula for the general sum in simplest form*

***c)*** **

***d)*** * (i.e. the sum of this specific series)*

**1.** (4 points) –12 – 9 – 6 –  + 12

**2.** (2 points) If *S*1 = 0.7 and *S*2 = 2.1 in a geometric series, determine the sum of the first 12 terms in the series. Be sure to show all of your work.

**3.** (3 points) A bouncy ball bounces to  its height when it is dropped on a hard surface. Suppose the ball is dropped from 18 m.

**a)** What height will the ball bounce back up to after the sixth bounce?

**b)** What is the total distance the ball travels if it bounces indefinitely?

**4.** (6 points) In a lottery to join a golf club, the first person drawn from the names must pay $14 000. Each subsequent person drawn pays $250 less than the person before. The last person drawn pays $8000 for a membership.

**a)** Write the first four terms of the sequence that represents the cost of a membership.

**b)** Determine *t*1 and *d* for the sequence.

**c)** Determine an explicit formula for the general term in simplest form.

**d)** What will the 10th golfer pay for a membership?

**e)** How many golfers will be able to join the club?

**5.** (2 points) The sum of the first two terms of an arithmetic series is 15 and the sum of the next two terms is 43. What are the first four terms of the series?

**6.** (2 points) Write each repeating decimal number as an equivalent fraction in lowest terms.

**a)** 0.5555...

**b)** 