Solve each of the following problems. Show your work neatly organized.

1. Find the sum of the first 10 terms of an geometric sequence in which $a_1 = 5$ and $r = 2$.

2. Find the sum of the first 8 terms of the sequence defined by $a_n = (-2)^n$.

3. Find the sum of the first 10 terms of the sequence defined by $a_{n+1} = 0.5a_n$ where $a_1 = 128$.

4. Find the sum of the first 9 terms of the sequence 2, 6, 18, 54, ...

5. Evaluate the series $3 + 6 + 12 + 24 + 48 + ... + 3072$.

6. Evaluate the infinite series $1 - 0.5 + 0.25 - 0.125 + ...$

Solve each of the following problems. Show your work neatly organized.

7. Evaluate: $\displaystyle\sum_{i=1}^{10} (\text{-}5)(\text{-}3)^{(i-1)}$

8. Evaluate: $\displaystyle\sum_{i=1}^{\infty} \left(\frac{2}{3}\right)\left(\frac{1}{2}\right)^{(i-1)}$

9. A job has a starting salary of $12,000 with a guaranteed increase of 3% per year. Find the total salary for the first ten years.

10. A ball is dropped from a height of 100 inches onto a concrete floor. On each bounce the ball rebounds to 80% of its previous height. What is the total vertical distance that the ball has traveled when its hits the floor for the tenth time? (Round your answer to the nearest tenth of an inch.)

11. A ball is dropped from a height of 100 inches onto a concrete floor. On each bounce the ball rebounds to 80% of its previous height. What is the total vertical distance that the ball will travel before it comes to rest? (Round your answer to the nearest tenth of an inch.)