All answers should be fractions, not decimals. Be sure to use the formulas we learned in class – don't just add the numbers!

1. Find the 4^{th} term in the geometric sequence $5, -3 \ldots$.

2. Compute $\displaystyle\sum_{k=0}^{5} \frac{(-3)^k}{2^{k+1}}$.

3. You are given a geometric sequence with $a = 2$ and $r = -\dfrac{1}{3}$. For what n does $S_n = \dfrac{122}{81}$?

4. Compute $\displaystyle\sum_{n=0}^{\infty} \frac{7^n}{4^{2n}}$.

5. Suppose that five terms of a geometric sequence with ratio $r = -\dfrac{2}{3}$ sum to $\dfrac{55}{9}$. What is the first term of the sequence?

6. Suppose an infinite geometric series has ratio $-\dfrac{3}{5}$ and sums to 4. What is the first term for this series?