**U5 Day 9 Homework Geometric Sequences and Series**

**Given the explicit formula for a geometric sequence, find the first five terms and the 8th term.**

1. $a\_{n}=3^{n-1}$
2. $a\_{n}=2∙(\frac{1}{4})^{n-1}$
3. $a\_{n}=-4 ∙3^{n-1}$

**Given the recursive formula for a geometric sequence, find the common ratio, the first five terms and the explicit formula**

1. $a\_{n}=a\_{n-1}∙2$

$$a\_{1}=2$$

1. $a\_{n}=a\_{n-1}∙-3$

$$a\_{1}=-3$$

**Find the partial sum** $S\_{n}$ **of the geometric sequence that satisfies the given conditions.**

1. $a\_{1}=5, r=2, n=6$
2. $a\_{1}=\frac{2}{3}, r=\frac{1}{3}, n=4$
3. $a\_{1}=28, r=-2, n=6$
4. $a\_{1}=0.12, r=-3, n=4$

**Determine whether each infinite geometric series converges. If it converges, find the sum.**

1. $1+\frac{1}{3}+\frac{1}{9}+\frac{1}{27}+…$
2. $1-\frac{1}{2}+\frac{1}{4}-\frac{1}{8}+…$
3. $1-\frac{1}{3}+\frac{1}{9}-\frac{1}{27}+…$
4. $\frac{2}{5}+\frac{4}{25}+\frac{8}{125}+…$