Algebra II- Section 11.7/ Geometric Series **Name**_____

Find the sum of the Finite Geometric Series: $s_n = \frac{a_1(1-(r)^n)}{(1-r)}$

1. $2+\frac{2}{3}+\frac{2}{9}+\frac{2}{27}$

2. $\frac{1}{3}+\frac{1}{4}+\frac{3}{16}+\frac{9}{64}+\frac{27}{256}$

3. $\frac{1}{2}+\frac{3}{4}+\frac{9}{8}+\frac{27}{16}+\frac{81}{32}$

4. $a_1 = 6,\ r = \frac{2}{3}, n = 7$

5. $a_1 = 8,\ r = \frac{1}{3},$
$s_5 =$

6. $a_1 = -2,\ r = \frac{-1}{2}$
$s_9 =$

7. $\sum_{1}^{7} 3\left(\frac{1}{4}\right)^{n-1} =$

8. $\sum_{1}^{3} 2(-3)^{n-1} =$

9. $\sum_{1}^{6} 5\left(\frac{-1}{3}\right)^{n-1} =$

10. On a 4x4 checker board, if you placed a kernel of corn on the first square, two kernels on the second, four on the third, eight on the fourth, etc…If this pattern continues how many kernel are on the entire board?

Find the sum of the Infinite Geometric Series: $s_n = \frac{a_1}{(1-r)}, \quad -1 < r < 1$

11. $2+\frac{2}{3}+\frac{2}{9}+\frac{2}{27}\ldots$	**12.** $\frac{1}{3}+\frac{1}{4}+\frac{3}{16}+\frac{9}{64}\ldots$	**13.** $\frac{1}{2}+\frac{3}{4}+\frac{9}{8}+\frac{27}{16}\ldots$
14. $a_1 = 6,\ r = \frac{2}{3}$	**15.** $a_1 = 8,\ r = \frac{1}{3}$	**16.** $a_1 = -2,\ r = \frac{-1}{2}$
17. $\sum_{1}^{\infty} 3\left(\frac{1}{4}\right)^{n-1} =$	**18.** $\sum_{1}^{\infty} 2(3)^{n-1} =$	**19.** $\sum_{1}^{\infty} 5\left(\frac{-1}{3}\right)^{n-1} =$

20. You drop a ball from a height of 20 feet, each time the ball hits the ground it bounces half the previous height. How far does the ball travel while bouncing?