

13. $S = \frac{2}{3}$

14. $S = 36$

15. Arithmetic
 $S_8 = 156$

16. Geometric
 $S \approx 6250$

17. Arithmetic
 $S = -4.9$

18. a) $n = 5$
b) $a_1 = 4$, $a_5 = 16$
c)
d) $S_5 = 50$

19a) $n = 8$

b) $a_1 = \frac{2}{3}$

c) $a_8 = \frac{16}{3}$

d) $S_8 = \frac{12610}{6561}$

20a) $n = 7$

b) $a_1 = 2.8$

c) $a_7 = 7.6$

d) $S_7 = 36.4$

21a) $n = 5$

b) $a_1 = -2$

c) $a_5 = -32$

d) $S_5 = -22$

22. The only infinite series that converge are geometric whose common ratio's absolute value is < 1 .
(Your Examples will vary)

23. \$3693.64
 $a_n = 2500(1.05)^n$
 $n = \text{\# of yrs since purchase}$

24. $\sum_{n=1}^5 -3n + 13$

25. $\sum_{n=1}^{10} 12\left(\frac{1}{6}\right)^{n-1}$

26. $\sum_{n=1}^7 80\left(-\frac{1}{2}\right)^{n-1}$

27. Converges
 $S = \frac{375}{2}$

28. Diverges
 $r = 1.1$

29. Diverges
 $r = 2$

30. Converges
 $S = 2$