18.1

2. not geometric

3. geometric a = 0.3 r = 0.1

6. not geometric

7. geometric a= 1 r= -1/2

15. geometric a = 0.2 r = 0.3

16. not geometric

19. a = 3/2, r = -1/2, $S-(-\frac{1}{2})S=\frac{3}{2}+\frac{3}{2^7} \Rightarrow S=1-(-\frac{1}{2})^6 \approx 0.984$

25. a = 5, r = 3, $S-3S=5-5(3^{11}) \Rightarrow S=442865$

30. a = 2/p, r = $2/p^2$, $S-\frac{2}{p^2}S=\frac{2}{p}-\frac{2^{21}}{p^{41}} \Rightarrow S=\frac{\frac{2}{p}-\frac{2^{21}}{p^{41}}}{1-\frac{2}{p^2}}$

33. [10 ft.] down + [10 ft.](0.7) up +[10ft.](0.7) down + [10 ft.(0.7)](0.7) up + [10 ft.(0.7)](0.7) down
$= 10+20(0.7)+20(0.7)^2 = 33.8$ ft. traveled when it hits the ground the 3rd time.
$10+20[(0.7)+(0.7)^2+\cdots+(0.7)^{11}]=10+20[\frac{0.7-(0.7)^{12}}{1-0.7}] \cong 55.74$ ft. traveled by the 12th hit.