

Unit 5 pg. 23 Evens

(2)  $-1, 5, -25, 125$   
 $n=4$   
 $a_1 = -1$   
 $r = -5$   
 $S_n = a_1 \frac{1-r^n}{1-r}$   
 $S_4 = -1 \cdot \frac{1-(-5)^4}{1-(-5)}$   
 $S_n = 104.3$

(4)  $-2, -12, -72, -432, -2592$   
 $n=5$   
 $a_1 = -2$   
 $r = 6$   
 $S_5 = -2 \frac{1-6^5}{1-6}$   
 $-2 \cdot \frac{-7775}{-5}$   
 $S_n = -3110$

(6)  $\sum_{i=1}^8 (-6)^{i-1}$   
 $n=8$   
 $a_1 = 1$   
 $r = -6$   
 $S_8 = 1 \cdot \frac{1-(-6)^8}{1-(-6)}$   
 $S_8 = -239945$

(8)  $\sum_{m=1}^9 -2^{m-1}$   
 $a_1 = -1$   
 $r = 2$   
 $n = 9$   
 $S_n = -1 \cdot \frac{1-(2)^9}{1-(2)}$   
 $S_9 = -511$

(10)  $a_1 = 4$   
 $r = 3$   
 $n = 9$   
 $S_9 = 4 \cdot \frac{1-3^9}{1-3}$   
 $S_9 = 39364$

(12)  $a_1 = 1$   
 $r = (-2)$   
 $n = 9$   
 $S_9 = 1 \cdot \frac{1-(-2)^9}{1-(-2)}$   
 $S_9 = 171$

(14)  $2, -10, 50, -250$   
 $n=8$   
 $a_1 = 2$   
 $r = -5$   
 $S_8 = 2 \cdot \frac{1-(-5)^8}{1-(-5)}$   
 $S_8 = -130208$

(16)  $-2, -6, -18, -54$   
 $n=9$   
 $a_1 = -2$   
 $r = 3$   
 $S_9 = -2 \cdot \frac{1-3^9}{1-3}$   
 $S_9 = -19682$

(18)  $-3, -6, -12, -24$   $n=9$   
 $a_1 = -3$   
 $r = 2$   
 $S_9 = -3 \frac{1-2^9}{1-2}$   
 $S_9 = -1533$

(20)  $a_1 = 4$   
 $a_n = 8748$   
 $r = 3$

$A_n = a_1 \cdot r^{n-1}$   
 $8748 = 4 \cdot 3^{n-1}$   
 $2187 = 3^{n-1}$   
 $\log 2187 = n-1 \log 3$   
 $\frac{\log 2187}{\log 3} = n-1$   
 $\log_3 2187 + 1 = n$   
 $n = 8$

(22)  $a_1 = 3$   $r = -3$   $S_n = -60$   
 $S_n = a_1 \frac{1-r^n}{1-r}$   
 $-60 = 3 \frac{1-(-3)^n}{1-(-3)}$   
 $-20 = \frac{1-(-3)^n}{4}$   
 $-80 = 1-(-3)^n$   
 $-81 = -(-3)^n$   
 $81 = (-3)^n$   
 $n = 4$

$$(29) a_1 = -3 \quad r = -2 \quad S_n = 63$$

$$S_n = a_1 \cdot \frac{1-r^n}{1-r}$$

$$63 = -3 \cdot \frac{1-(-2)^n}{1-(-2)}$$

$$-21 = \frac{1-(-2)^n}{3}$$

$$-63 = 1-(-2)^n$$

$$-64 = -(-2)^n$$

$$64 = (-2)^n$$

$$n = 6$$

$$(20) \sum_{m=1}^n -2 \cdot 4^{m-1} = -42$$

$$S_n = -42$$

$$a_1 = -2$$

$$r = 4$$

$$S_n = a_1 \cdot \frac{1-r^n}{1-r}$$

$$-42 = (-2) \cdot \frac{1-4^n}{1-4}$$

$$21 = \frac{1-4^n}{-3}$$

$$-63 = 1-4^n$$

$$-64 = -4^n$$

$$64 = 4^n$$

$$n = 3$$