1. For each formula below, find the first five terms of the sequence that is defined by the formula.

   (a) $s_n = n + (-1)^n$

   (b) $q_k = (-1)^{k+1} \left(\frac{1}{2}\right)^{k-1}$

   (c) $t_n = 2t_{n-1} + 3$ for $n > 1$, with $t_1 = 1$.

2. Match formulas (a)-(d) with graphs (I)-(IV).

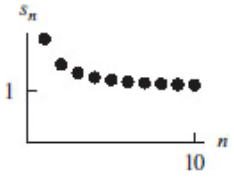
   (a) $s_n = 1 - 1/n$

   (b) $s_n = 1 + (-1)^n/n$

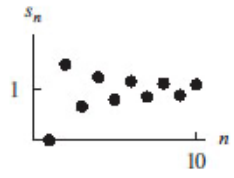
   (c) $s_n = 1/n$

   (d) $s_n = 1 + 1/n$

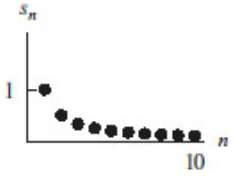
(I)



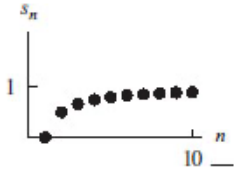
(III)



(II)



(IV)



3. Match formulas (a)-(e) with graphs (I)-(V):

(a) $s_n = 2 - 1/n$

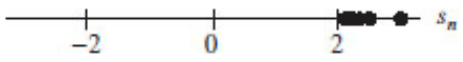
(b) $s_n = (-1)^n \cdot 2 + 1/n$

(c) $s_n = 2 + (-1)^n/n$

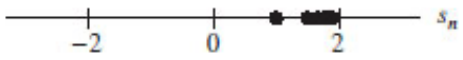
(d) $s_n = 2 + 1/n$

(e) $s_n = (-1)^n \cdot 2 + (-1)^n/n$

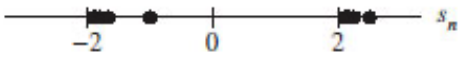
(I)



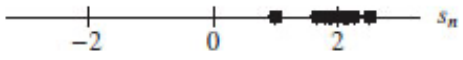
(II)



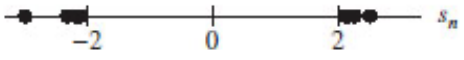
(III)



(IV)



(V)



4. Match formulas (a)-(e) with descriptions (I)-(V) of the behavior of the sequence as $n \to \infty$.

(a) $s_n = n(n+1) - 1$	(I) Diverges to $-\infty$
(b) $s_n = 1/(n+1)$	(II) Diverges to $+\infty$
(c) $s_n = 1 - n^2$	(III) Converges to 0 through positive numbers
(d) $s_n = \cos(1/n)$	(IV) Converges to 1
(e) $s_n = (\sin n)/n$	(V) Converges to 0 through positive and negative numbers

5. Does the sequences below converge or diverge? If it converges, find its limit.

   (a) $s_n = (-0.3)^n$

   (b) $t_n = \dfrac{2n+1}{n}$

   (c) $p(k) = \cos(\pi k)$

6. Determine which of these sequences are bounded, which are increasing, which are decreasing, and which converge.

   (a) $a_n = -\cos\left(\dfrac{\pi}{n}\right)$

   (b) $b_n = \left(\dfrac{4}{3}\right)^n$

   (c) $c_n = (-1)^n$

   (d) $d_n = \dfrac{2n + e^{-n}}{5n}$