6. [12 points] Answer the following questions relating the the sequences shown here:

$$a_n = -\cos\left(\frac{\pi}{n}\right) \qquad b_n = \frac{(-1)^n(n+1)}{n} \qquad c_n = \left(\frac{4}{3}\right)^n \qquad d_n = \sum_{k=1}^{n}\left(-\frac{3}{4}\right)^k$$

Assume all sequences start at the index $n = 1$.

a. [3 points] Which of the sequences are bounded?

$\boxed{a_n}$ $\boxed{b_n}$ c_n $\boxed{d_n}$ *none*

b. [3 points] Which of the sequences shown above are monotone increasing?

a_n b_n $\boxed{c_n}$ d_n *none*

c. [3 points] Which of the sequences shown above are monotone decreasing?

$\boxed{a_n}$ b_n c_n d_n *none*

d. [3 points] Which of the sequences shown above converge?

$\boxed{a_n}$ b_n c_n $\boxed{d_n}$ *none*