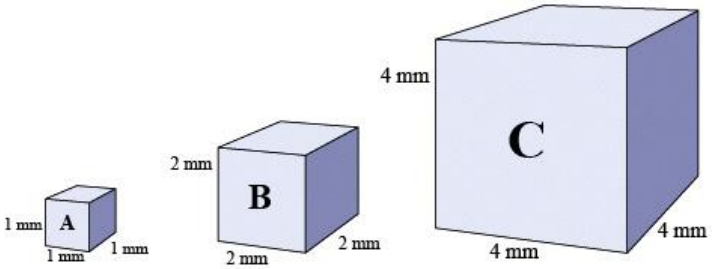
Round: 8B

Organisms that live in the photic zone of the ocean must contend with a number of challenges. Sinking out of the photic zone can doom many organisms. Manipulating their surface area to volume ratio is one adaptation that can slow sinking rates.

1. Based on the three hypothetical marine cube organisms below (A, B and C), calculate each organism's surface area, its volume and its surface area to volume ratio. Be sure to include the correct units. (9 pts)

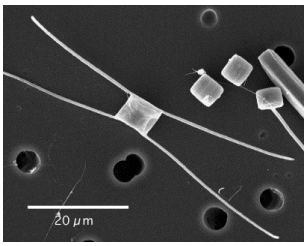


Organism	A	B	C
Surface Area			
Volume			
Surface Area/Volume			

2. Based on the ratios you've calculated, put these organisms in order from slowest sinking rate to fastest sinking rate. (3 pts)

3. Both organisms shown below can be found in ocean surface waters. While one is a zooplankter and the other is a phytoplankter, both are transparent/semi-transparent, and both have protruding spines. Explain one (1) advantage to being transparent and give two (2) advantages to having spines. (8 pts)

(A)



(B)