ANSWER ANSWER ANSWER ANSWER

Round: 7A

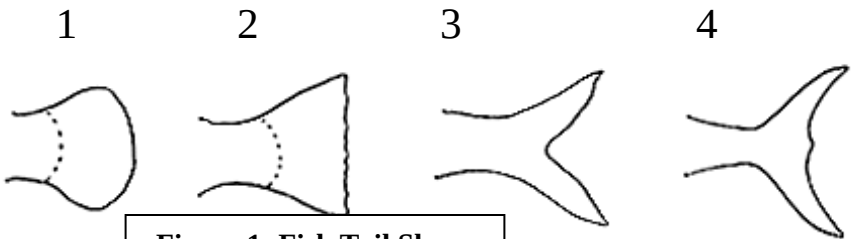

Figure 1: Fish Tail Shape

1. a. The shape of a fish's caudal fin determines the aspect ratio. How is a fin's aspect ratio calculated from tail measurements? Write the equation in the space below.

Aspect ratio $= \frac{(\textit{fin height})^2}{\textit{fin area}}$ *(4 pts)*

Also accept: Ratio of fin height to fin area (4 pts)

b. Using your equation from 1a, what is the aspect ratio of the remarkably rectangular caudal fin depicted in Figure 2?

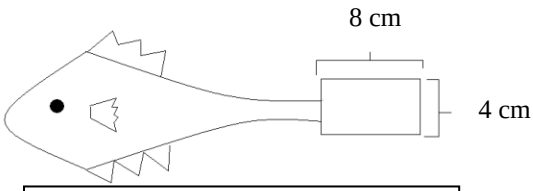

Figure 2: Hypothetical Caudal Fin

Fin Height=4 cm
Fin Area=32 cm
Aspect Ratio= $(4^2)/32$=0.5 OR ½ (4 pts)
Also accept: Aspect Ratio =4/32=0.125 OR 1/8 (4 pts)

2. a. Referring to Figure 1, which caudal fin type has the highest aspect ratio?

Fin type #4 (2 pts)

b. For what sort of swimming is this caudal fin type best adapted?

Fast OR steady OR pelagic swimming (2 pts)

c. Name two (2) species of fish in which this caudal fin type is found.

Accept any TWO of the following (1 pt each; 2 pts total):
Mako Shark, great white shark, Porbeagle Shark, Tuna, mackerel, swordfish, sailfish, billfish, marlin

3. I am a fish that lives on the bottom. I am pretty much a sit-and-wait predator, so I have to be good at both accelerating and maneuvering. However, I am a pretty slow swimmer if I have to swim for any length of time. What kind of tail should I have and why?

#1 or Round (2 pts)
This is a rounded tail with low aspect ratio (2 pts); low aspect ratio fins tend to be soft and flexible for good maneuverability and good acceleration (2 pts).