

PAL Worksheet
Week 10 Problem Set 2

URINALYSIS

To celebrate their college graduation, Rob, Bob, and Murph decided to take a trip to Hawaii. The plan was to find the best airline deal, get to Hawaii and then surf, swim and hike for two weeks. While waiting to board the plane, the three friends ordered beverages at a terminal café. Rob ordered a glass of isotonic Gatorade; Bob ordered iced water and Murph ordered a martini. Once on the plane, they continued to order similar drinks all throughout the flight; isotonic Gatorade for Rob, water for Bob and lots of alcoholic beverages for Murph.

- 1) On your white board, draw a graph showing the relationship between time (X axis) and urine output (Y axis), for Rob, Bob and Murph (Gatorade, water and alcohol), over the course of the flight.
- 2) Explain the urine flow rate differences between Bob (water) and Murph (alcohol). Draw the detailed mechanism.
- 3) Explain the differences in urine flow rate between Bob (water) and Rob (Gatorade).
 - How their blood osmolarity would be different?
 - How would the blood ADH levels differ?
- 4) Compare the concentration of Bob's (water) urine to that of Rob's (Gatorade).
- 5) Of the three friends, who will wake up the next morning suffering from dehydration (and a headache)?