

3. (9 points) The water level in an an underground tank varies periodically every 7 hours, oscillating between a maximum level of 4.6 feet and a minimum of 3.2 feet.

(a) If the water reaches a maximum height at 9am on a certain day, write a formula using the sine or cosine function, for the height  $h$  as a function of time  $t$ , where  $t$  is measured in hours past midnight of that day.

(b) What are the period and amplitude of your function? (Use units, if appropriate.)

Period \_\_\_\_\_ Amplitude \_\_\_\_\_

(c) At what rate is the water rising or falling (indicate which) at 2pm on that day? (Be sure to use units in your answer.)