

Math 1AA3/1ZB3: Week 8 Tutorial Problems

March 1, 2019

1. A hollow cylinder with radius 2 metres is submerged on its side in 8 metres of still water. Compute the hydrostatic force exerted on one end of the cylinder.
2. Suppose a rabbit population $P(t)$ satisfies $P(0) = 50$ and:

$$\frac{dP}{dt} = 0.4P - 0.001P^2$$

- (a) What is the eventual stable population?
- (b) What is $P'(0)$?
- (c) When will the population reach half the stable population?