


CHAPTER 1

Engineering Formulae

Additional exercise 1(h)

- 8  [dimensional analysis] The power, P , required to drive an air screw depends on the diameter D , the number n of revolutions per second and density ρ . Assume

$$P = K\rho^a n^b D^c$$

where K , a , b and c are real numbers. Using dimensional analysis, or otherwise, determine a , b and c and write down the equation relating P , ρ , n and D . (Take the dimensions of n to be T^{-1} .)