

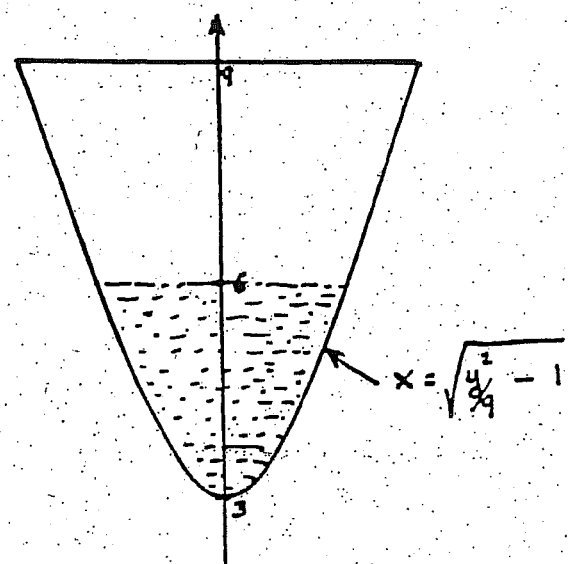
# PROBLEMS ON WORK

above the surface of Earth.

(Take the radius of Earth as 4 000 miles and give your answer in ton-miles.)

- b) How much additional work would be required to put the satellite in geosynchronous orbit (orbits the Earth once a day) at an altitude of 22 400 miles above the surface of Earth.

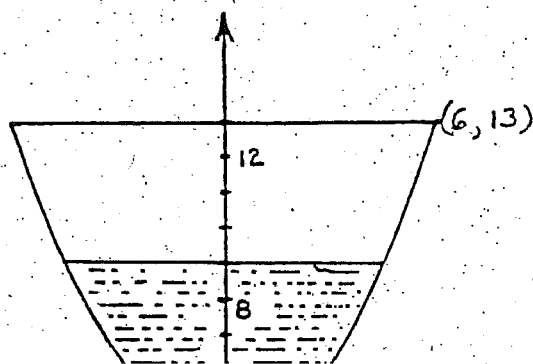
- 2. A tank is located with its base 3 m. above ground level. The shape of the tank is formed by revolving the hyperbola  $\frac{y^2}{9} - x^2 = 1$  about the y axis for  $3 \leq y \leq 9$ .



- a) Calculate the work done to fill the tank to a depth of 3 m. with oil of density  $800 \text{ kg/m}^3$  if the oil is pumped in from ground level.



7. A tank which is 9 ft. high, has its base 4 ft. above ground level and is formed by revolving the parabola  $y = \frac{x^2}{4} + 4$  about the y axis. If the tank is filled to a depth of 5 ft. with oil of density 50 lb/ft<sup>3</sup>, find the work done in pumping all the oil up over the top of the tank.





ANSWER

