8.5 Applications to Physics

Name: Date:

P 1. Find the work done on a 40 lb suitcase when it is raised 9 inches.

P 3. A particle x feet from the origin has a force of $x^2 + 2x$ pounds acting on it. What is the work done in moving the object from the origin a distance of 1 foot?

P 7. A circular steel plate of radius 20 ft lies flat on the bottom of a lake, at a depth of 150 ft. Find the force on the plate due to water pressure. [Hint: Pressure = Mass $\cdot g \cdot$ Depth or $p = \delta g h$ and, provided the pressure is constant over a given area, Force = Pressure $\cdot$ Area]

P 13. An anchor weighing 100 lb in water is attached to a chain weighing 3 lb/ft in water. Find the work done to haul the anchor and chain to the surface of the water from a depth of 25 ft.

P 19. A water tank is in the form of a right circular cylinder with height 20 ft and radius 6 ft. If the tank is half full of water, find the work required to pump all of it over the top rim.