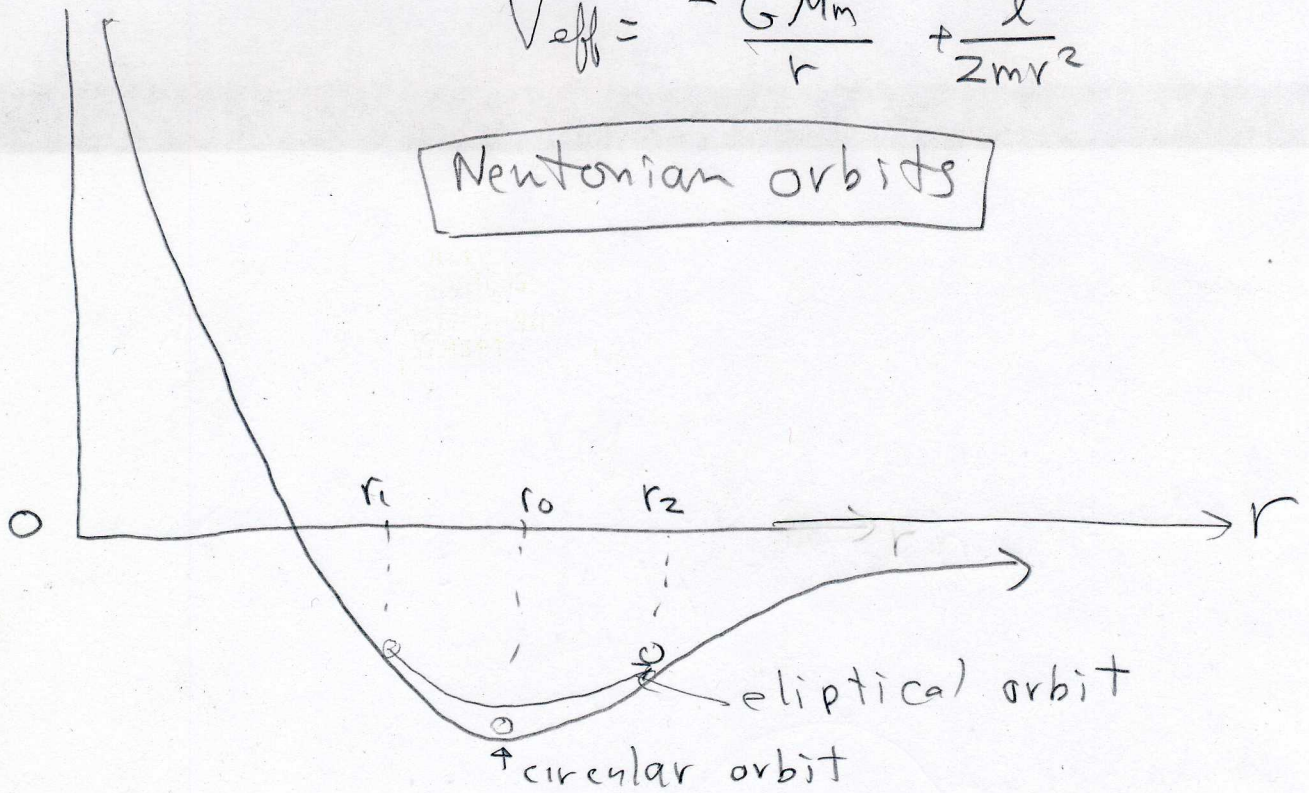


# Effective Potentials

$V_{\text{eff}}$

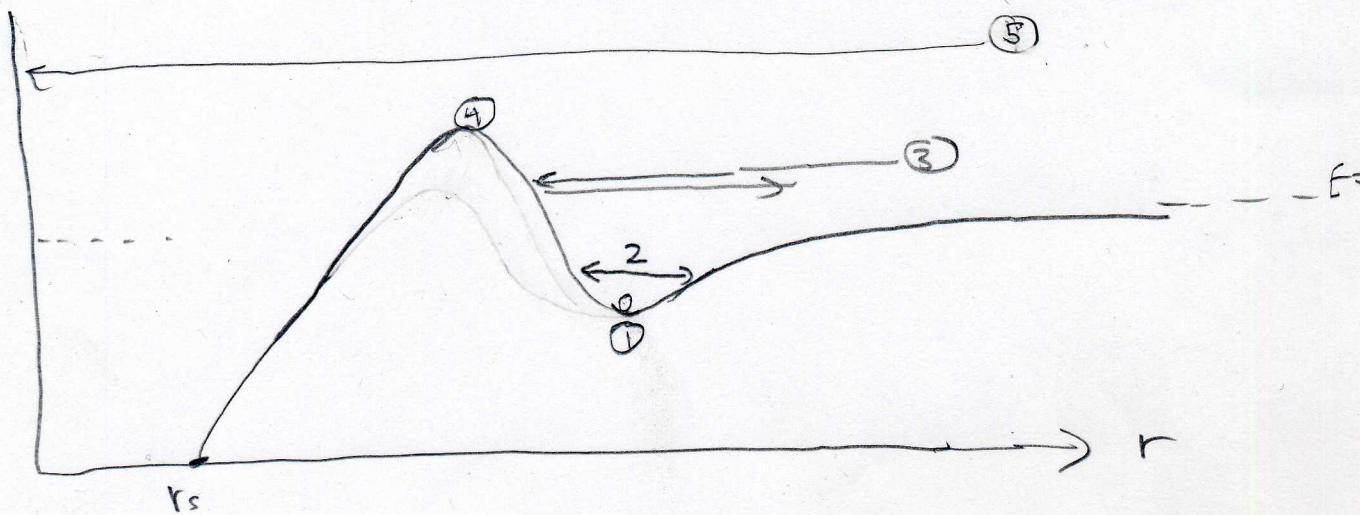
$$V_{\text{eff}} = -\frac{GMm}{r} + \frac{l^2}{2mr^2}$$

Newtonian orbits



$V_{\text{eff}}$

Schwarzschild orbits



- ① circular bound orbit (stable)
- ② bound orbit, not quite elliptical!
- ③ Comes in then out - like hyperbolic
- ④ Unstable circular orbit - not bound
- ⑤ Capture orbit - doesn't come out