Advanced Micro II - Problem set 1
due date: March, 28th

Problem 1 (2p) *Similarly to a model presented during classes consider a moral hazard model with two actions but risk averse principal, i.e. with utility* $\sum_i v(q_i - w_i)\pi_i(a)$*, for increasing, differentiable and strictly concave* v*.*

Problem 2 (2p) *Similarly to a model presented during classes consider a repeated for two periods moral hazard model but with different discount factors for the principal and agent:* δ_P *and* δ_A *respectively. Write the FOCs and discuss how different patience parameters influence the optimal long-term contract.*

Problem 3 (3p) *Consider the hidden information problem as analyzed during classes. Redo the first and second best calculations for the case of continuum of types, i.e.* $\theta \in [\underline{\theta}, \overline{\theta}]$ *with density* $f(\theta) > 0$ *and cdf* $F(\theta)$*. As an example solve for* f *uniform on* $[\underline{\theta}, \overline{\theta}]$ *and with* $S(q) = \log q$*.*

Problem 4 (3p) *Consider the hidden information problem as analyzed during classes. Redo the first and second best calculations for the more general utility function of the agent:* $u(w) - C(q, \theta)$*, where* u *is strictly incresing, strictly concave and differentiable, while differentiable* C *satisfies:* $C'_q > 0, C'_\theta > 0, C''_{qq} > 0, C''_{q,\theta} > 0, C'''_{q,q,\theta} > 0$*.*