ECONOMICS FORMULA SHEET

Supply and Demand

Equilibrium: $Q_D = Q_S$

$P > P_e$: surplus $= Q_S - Q_D$

$P < P_e$: shortage $= Q_D - Q_S$

Elasticities

$PED = \%\Delta Q_D / \%\Delta P$

$YED = \%\Delta Q_D / \%\Delta Y$

$CPED = \%\Delta Q_A / \%\Delta P_B$

Utility & Consumer Surplus

$MCS = MU - P$

$TCS = TU - TE = \Sigma MCS$

$TU = \Sigma MU$

$TE = P \times Q$

Consumer Demand & Uncertainty

Expected Value: $E(X) = \Sigma w_i p(w_i)$

Expected Utility Theorem:

$E[U(w)] = \Sigma U(w_i) p(w_i)$

Maximum premium *(P)*:

$E[U(a - X)] = U(a - P)$

Minimum premium *(Q)*:

$E[U(a + Q - Y)] = U(a)$

Production

$TPP = f(K, L)$

$APP = TPP / Q_v$

$MPP = \Delta TPP / \Delta Q_v$

$MPP_A / P_A = MPP_B / P_B = \cdots = MPP_N / P_N$

Costs

$TC = TFC + TVC$

$AC = TC / Q = AVC + AFC$

$AVC = TVC / Q$

$AFC = TFC / Q$

$MC = \Delta TC / \Delta Q$

Revenue

$TR = P \times Q$

$AR = TR / Q$

$MR = \Delta TR / \Delta Q$

Profit

$T\pi = TR - TC = A\pi \times Q$

$A\pi = AR - AC$

Macroeconomics

$W = S + T + M$

$J = I + G + X$

$Y = C_d + W$

$E = C_d + J$

$k = \Delta GDP / \Delta E = \Delta Y / \Delta J$

$GDP = C + G + I + X - M$

$GNY = GDP + (X - M)$

$NNY = GNY - D$

$$\text{Unemployment rate} = \frac{\text{\# unemployed}}{\text{\# labour force}}$$

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$