Microeconomics formula sheet

Use this one-page sheet with the worked examples and practice problems in the guide.

Supply and demand

- Equilibrium: set Qd = Qs, solve for P, then substitute P into either equation to find Q.
- A change in the good's own price moves you along a curve.
- Income, tastes, expectations and the prices of related goods shift demand.
- Input costs and technology shift supply.

Price elasticity of demand (midpoint method)

- % change in Q = (Q2 - Q1) ÷ [(Q2 + Q1) ÷ 2]
- % change in P = (P2 - P1) ÷ [(P2 + P1) ÷ 2]
- Elasticity = % change in Q ÷ % change in P, reported as an absolute value

Elasticity	Demand is	Price rise makes revenue
Greater than 1	Elastic	Fall
Less than 1	Inelastic	Rise
Equal to 1	Unit elastic	Stay the same

Surplus and taxes (straight-line curves)

- Consumer surplus = ½× Q × (demand intercept - price)
- Producer surplus = ½× Q × (price - supply intercept)
- Per-unit tax t on sellers: shift supply up by t and solve again for Q
- Buyers pay the price on the demand curve at the new Q; sellers keep that price minus t
- Tax revenue = t × new Q
- Deadweight loss = ½× t × (old Q - new Q)
- The steeper (less price-responsive) side pays the larger share of a tax

Costs and profit

- ATC = TC ÷ Q, AVC = VC ÷ Q, AFC = FC ÷ Q
- MC = change in TC ÷ change in Q
- Profit = TR - TC = (P - ATC) × Q
- Produce where MR = MC. In perfect competition, MR = P.
- Short run: shut down if price is below the minimum of AVC

Monopoly

- Linear demand P = a - bQ gives MR = a - 2bQ
- Set MR = MC to find Q, then read the price from the demand curve
- With constant MC, deadweight loss = ½× (monopoly P - MC) × (competitive Q - monopoly Q)
- Fixed costs change profit, not the output decision