ECF1100 Microeconomics

MONASH BUSINESS SCHOOL · MONASH UNIVERSITY · UNDERGRADUATE

Full guide + ask Sia about ECF1100

SIDE 1/2 EXAM REVISION SHEET · definitions → formulas → decisions **SEMESTER 2 · 2026** Side 2: five drills · judgement cards · traps

0 · Exam Map

COURSE.JSON · S2

Exercise | Quiz/Test 30% | Examination 50%

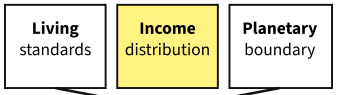
Permitted materials: not confirmed for this offering in the course materials we hold — check the exam instructions on the LMS.

Source: captured Semester 2 assessment surface; live instructions control examination conditions and timetable.

COMPONENT	WEIGHT	CONTROL
Exercise	20%	Current Moodle
Quiz/Test	30%	Current quiz operation
Examination	50%	Monash examination period

1 · Welfare: Three Lenses

C1 · PROSPERITY



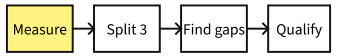
Source figure redrawn: growth, distribution and environmental pressure stay analytically separate.

GROWTH RATE

$g = (y_1 - y_0) / y_0$

Living standards are material and non-material conditions for meeting needs and pursuing valued lives. *Income distribution* is how income or wealth is divided. A *planetary boundary* is a biophysical limit beyond which environmental-system risk can rise sharply.

IF THE PROMPT GIVES...	DO THIS
Mean income	Calculate growth; do not infer distribution
Income shares	Identify who gained proportionally
GDP per person	Name omitted distribution, unpaid activity and ecological costs



Answer path: calculate, separate, identify missing evidence, then qualify.

RECALL → *An average cannot answer a distribution question.*

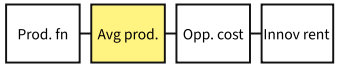
RECITE-AND-CHECK RULE

A positive g establishes growth only in the named variable. It does **not** establish stable prices, shared household gains, improved unpaid activity or lower environmental pressure.

CLAIM	EVIDENCE STILL NEEDED
Living standards improved	Material and non-material conditions, not income alone
Gains were shared	Distribution across people or groups

2 · Production & Incentives

C2 · TECHNOLOGY



feasibility ≠ adoption ≠ distribution

Source figure redrawn: feasible output must be linked to costs and incentives.

Production function: feasible output–input relationship under a stated technology. *Opportunity cost*: value of the best feasible alternative forgone. *Innovation rent*: temporary return above the next-best opportunity from an advantage.

AVERAGE PRODUCT OF LABOUR

$AP^L = q / L$ → output per labour unit

METHOD	CHECK	INTERPRET
Compare techniques	Same input basis	Higher output alone may not lower unit cost
Choose	Demand, quality, capacity	Technical feasibility does not fix ownership or adoption
Explain rent	Next-best opportunity	Temporary gain from advantage



use one denominator

Decision picture: standardise by the paid input before ranking techniques.

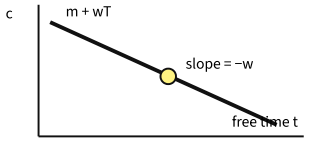
3 · Time, Work & Wellbeing

C3 · SCARCITY

TIME BUDGET

$c = m + w(T - t)$

c = consumption; m = non-labour resources; w = wage; T = discretionary time; t = free time. The slope is −w: each extra free hour costs w of feasible consumption.



frontier = feasible, not prescribed

Source figure redrawn: the wage is the opportunity cost of an hour of free time.

CHANGE	MECHANISM	CAUTION
w rises	Substitution and income effects can oppose	Do not assert hours' direction without preferences
m rises	Purchasing power changes	Relative price conceptually fixed
Observed hours	May be constrained	Contracts, care or job scarcity may bind

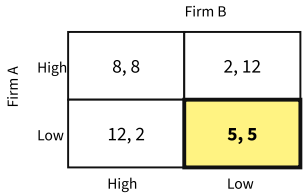
4 · Strategic Interaction

C4 · GAMES

Best response: highest-payoff action given others' actions. *Nash equilibrium*: no player gains from unilateral deviation. *Social dilemma*: individually attractive choices produce a collectively worse outcome.

BEST-RESPONSE CONDITION

$u_i(a_i*, a_{-i}*) \geq u_i(a_i, a_{-i}*)$



Source matrix redrawn: circle best responses; their intersection is the equilibrium.

STEP	QUESTION
1	Given each B action, which A payoff is larger?
2	Given each A action, which B payoff is larger?
3	Where do best responses coincide?
4	Is that cell also jointly best?

Equilibrium stable — **Joint outcome** efficient / fair?

separate tests

Trap picture: stability never proves efficiency or fairness.

RECALL → *Equilibrium is a stability claim.*

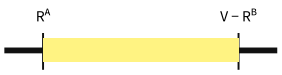
5 · Institutions & Bargaining

C5 · RULES

Institution: rule, convention or organisation structuring interaction and enforcement. *Reservation option*: outcome if agreement fails. *Bargaining power*: capacity to secure more surplus.

JOINT SURPLUS

$S = V - R^A - R^B$



feasible agreement set

rules + power select a point

Source figure redrawn: outside options bound the bargain; power divides the surplus.

DO NOT COLLAPSE	MEANING
Surplus size	Total gain from agreement
Surplus division	Who receives that gain
Voluntary agreement	Does not prove equal power or justice

6 · Firms & Employment Rents

C6 · CONTRACTS

Firm: organisation coordinating production through ownership, authority and contracts. An *incomplete contract* cannot specify or enforce every action and contingency. *Employment rent* is job value above the next-best alternative after relevant costs.

EMPLOYMENT RENT

$R_e = w - c - z$

rent R_e | cost c | outside z

wage w = R_e + c + z

larger fallback z → smaller rent

Source figure redrawn: identify job costs and the outside option before reading the gap.

IF X CHANGES	DIRECT EFFECT, ALL ELSE FIXED
w rises	Employment rent rises
job cost c rises	Employment rent falls
outside value z rises	Employment rent falls
rent positive	May motivate effort; monitoring and power still matter

Action not fully specified — **Rent makes job valuable** — Effort + supervision

incentive mechanism, not full welfare verdict

Mechanism picture: incomplete contracting makes rents and supervision consequential.

Answer structure: name the unobservable action, calculate rent from wage, costs and fallback, then link losing the job to effort, authority and monitoring. Keep power and conditions in the conclusion.

7 · Customers & Market Power

C7 · PRICE SETTING

Willingness to pay is a buyer's maximum exchange amount. *Markup* is price above marginal cost, in dollars or relative terms.

PRICE ELASTICITY OF DEMAND

$\varepsilon^D = \%\Delta Q^D / \%\Delta P$

|ε| < 1 inelastic | **|ε| = 1 unit elastic** | |ε| > 1 elastic

P↑ → R↑ | R stable | P↑ → R↓

revenue ≠ profit; costs still matter

Source decision figure redrawn: magnitude classifies responsiveness; costs are separate.

SIGNAL	PREDICTION
Closer substitutes	Demand becomes more responsive; markup pressure rises
ε negative	Price and quantity move oppositely
Profitable markup	Does not prove customer value or social efficiency

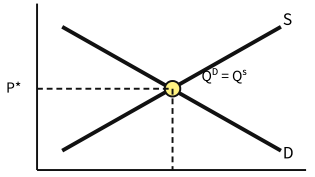
8 · Supply, Demand & Equilibrium

C8 · MARKET

Demand curve: buyer quantity choices against price, other conditions fixed. *Supply curve*: seller quantity choices against price, other conditions fixed. *Competitive equilibrium*: planned demand equals planned supply.

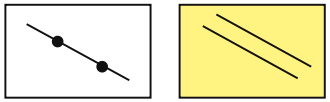
MARKET CLEARING

$Q^D(P*) = Q^S(P*)$



Source figure redrawn: solve the common price, then verify quantity in both curves.

MARKET-SOLVING ROUTINE	EXAM CHECK
Set $Q^D = Q^S$	Same price variable and units
Solve for P*	Sign and plausibility
Substitute for Q*	Both equations return same Q
Interpret	State held-fixed conditions



price changes → move | other factor → shift

Decision picture: price changes move along a curve; other conditions shift it.

COMPARATIVE STATICS

SHIFT	P*	Q*
Demand right	↑	↑
Demand left	↓	↓
Supply right	↓	↑
Supply left	↑	↓
Both shift	One outcome may be ambiguous: identify it	

TWO-SHIFT LOGIC

If demand and supply both shift, analyse each change separately before combining them. When both push an outcome in the same direction, that outcome is determinate; when they push it in opposite directions, its sign is ambiguous without magnitudes. State which curve moved, what was held fixed and whether the prompt describes a movement or a shift.

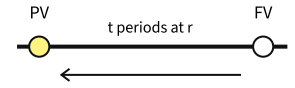
9 · Credit Across Time

C9 · CREDIT

Intertemporal choice trades resources across dates. The *interest rate* prices purchasing-power movement across dates under stated compounding and risk. *Credit rationing* restricts lending quantity or access rather than adjusting price alone.

PRESENT VALUE

$PV = FV / (1 + r)^t$



discount future amount back

Source timeline redrawn: rate period, time period and compounding must match.

BEFORE CALCULATING	AFTER CALCULATING
Match t to r	State certainty/risk assumptions
Separate observed and derived values	Check units and direction
Predict PV < FV when r>0	Name collateral, fees or access limits

Interest rate price of transfer — **Rationing** quantity / access

one rate does not explain both

Comparison figure: credit access can be constrained even without a price change.

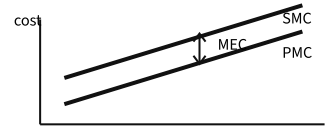
10 · Externalities & Public Goods

C10 · POLICY

External effect: a cost or benefit borne outside the transaction. *Public good*: non-rival and difficult to exclude non-payers. A *Pigouvian instrument* aligns private incentives with marginal external effects.

SOCIAL MARGINAL COST

$SMC = PMC + MEC$



Source figure redrawn: marginal external cost lifts the relevant cost curve.

Identify failure → Find wedge → Match tool → Test limits

efficient Q also needs marginal benefit

policy can fail as well as markets

Method figure: diagnose the failure before choosing and stress-testing policy.

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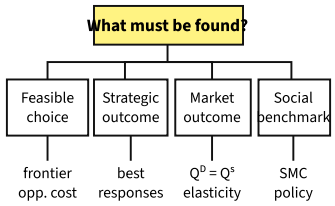
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SIDE 2/2 SELF-TEST DRILLS · answer path → judgement → trap check EXAM REVISION SHEET Five source-numbered drills · fast recall

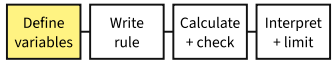
11 · Method Chooser ALL CHAPTERS



assume → calculate → interpret

Chooser: classify the task before selecting a formula or diagram.

IF YOU SEE...	DO THIS
Change over time	Use g; name the variable and base
Input/output techniques	Compare q/L or unit cost on one basis
Time and wage	Write c=m+w(T−t); interpret slope
Payoff matrix	Circle each player's best response
Outside options	Compute joint surplus, then discuss division
Demand/supply equations	Set equal, solve, substitute twice
Future amount	Discount using matching r and t
External damage	Add MEC to PMC; still compare with benefit



one visible line per analytical job

Universal answer path: make the decision visible before the arithmetic.

REPRESENTATION CHECK

Before calculation, make a three-column scratch table: **symbol · unit · observed/derived**. Predict the answer's direction. After calculation, run one boundary or limiting-case check and write the economic sentence the number supports. This separates translation errors from arithmetic and prevents a polished number from answering the wrong question.

PROMPT VERB	REQUIRED OUTPUT
Calculate	Formula, substitution, number and unit
Compare	Common basis plus direction and magnitude
Explain	Mechanism from incentive/rule to behaviour
Evaluate	Result, distribution, assumptions and counterfactual

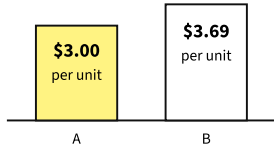
12 · Exam-Morning Plan STUDY STRATEGY

13 · Drill 1: Techniques C2 WORKED EXAMPLE

Prompt. Technique A makes 100 units with 10 labour hours; B makes 130 with 16. Labour costs $30/hour; other costs equal. Compare unit labour cost.

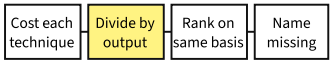
ANSWER PATH

A: (10×$30)/100 = $300/100 = **$3.00/unit**
B: (16×$30)/130 = $480/130 ≈ **$3.69/unit**



Computed check: A has lower labour cost per unit despite B's higher output.

EARN THE CONCLUSION	WHAT TO SAY
Comparison	A is cheaper on this input
Not established	Total cost, output quality or capacity value
Trap	More output ≠ higher productivity per paid input



do not rank by q alone

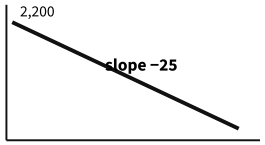
Answer route: cost, standardise, rank, qualify.

14 · Drill 2: Time Budget C3 WORKED EXAMPLE

Prompt. 80 discretionary hours per fortnight; wage $25/hour; $200 non-labour funds. Write consumption as a function of free time t.

ANSWER PATH

work = 80 - t
c = 200 + 25(80 - t)
c = 2,200 - 25t

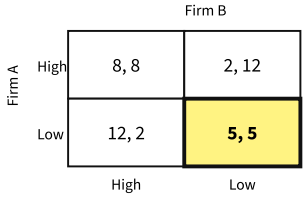


each free hour costs $25 consumption

Computed line: intercept $2,200; slope −$25 per free hour.

15 · Drill 3: Best Responses C4 WORKED EXAMPLE

Prompt. Two firms choose High or Low price. Payoffs: H/H 8,8; L/H 12,2; H/L 2,12; L/L 5,5. Find equilibrium.



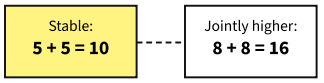
Low is each firm's best response

Computed matrix: Low/Low is the mutual-best-response cell.

ANSWER PATH

If B=High: A gets 12 from Low > 8 from High.
If B=Low: A gets 5 from Low > 2 from High.
By symmetry B also chooses Low.
Nash equilibrium = Low/Low, payoff 5,5.

CLAIM	VERDICT
Low is dominant	Yes: best against either rival action
Low/Low is stable	Yes: no profitable unilateral deviation
Low/Low maximises joint payoff	No: H/H gives 16 versus 10
H/H is equilibrium	No: either firm can gain by cutting

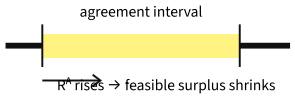


social dilemma: private incentives block H/H

Judgement card: separate unilateral stability from the joint-payoff comparison.

Robustness check: one strict best response for each player gives one intersection here. If a changed payoff makes actions tie, mark both as best responses and re-check every cell; do not carry the old equilibrium across.

16 · Bargaining Judgement Cards C5 · C6 TRANSFER



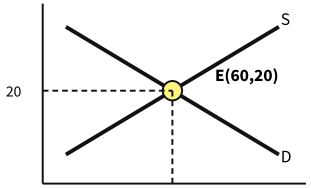
Changed-case check: stronger fallback shifts the lower bound and reduces surplus.

17 · Drill 4: Linear Market C8 WORKED EXAMPLE

Prompt. Demand Q^D=100−2P; supply Q^S=20+2P. Find competitive equilibrium.

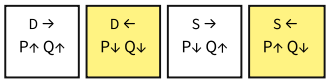
ANSWER PATH

100 - 2P = 20 + 2P
80 = 4P → **P* = 20**
Q^D = 100 - 2(20) = **60**
Q^S = 20 + 2(20) = **60**



Computed graph: both equations return Q=60 at P=20.

CHECK	PASS CONDITION
Algebra	Same P in both planned quantities
Substitution	Q^D and Q^S both equal 60
Interpretation	Conditional on specified curves and competitive assumptions
Do not claim	That equilibrium proves efficiency under external effects



both shift → identify the ambiguous outcome

Fast-recall comparative statics: predict direction before doing algebra.

18 · Market Traps C7 · C8 LIMITS

TRAP	REPAIR
Price changed, so demand shifted	That is movement along demand
|ε|>1 means profit falls when price rises	Revenue likely falls locally; profit needs cost
Markup proves value	It does not prove customer value or social efficiency
Equilibrium is unconditional	Name competition, information, external effects and held-fixed factors

IF BOTH CURVES MOVE

Decompose the problem into a demand-only and a supply-only prediction. Combine arrows only after identifying whether each pushes P* and Q* in the same or opposite directions. Same-direction arrows determine the sign; opposite arrows mean the net effect needs shift magnitudes.

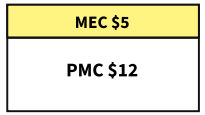
EVIDENCE	CLASSIFICATION
Own price changes, other factors fixed	Movement along curve

19 · Drill 5: External Cost C10 WORKED EXAMPLE

Prompt. At 100 units, private marginal cost is $12 and marginal external damage is $5 per unit. What social marginal cost guides the benchmark?

ANSWER PATH

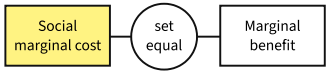
SMC = PMC + MEC
SMC = $12 + $5
SMC = $17 per unit at Q=100



SMC $17 per unit

Computed stack: the external damage belongs in the marginal social cost.

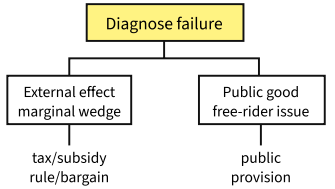
WHAT FOLLOWS	WHAT DOES NOT FOLLOW
The relevant cost benchmark is $17	The efficient quantity is 100
Private and social incentives diverge by $5	The damage estimate is automatically justified
A Pigouvian instrument may align incentives	Any one policy must dominate regulation or bargaining



cost alone cannot locate efficient Q

Decision picture: the benchmark quantity needs marginal benefit as well as SMC.

20 · Policy Chooser C10 JUDGEMENT



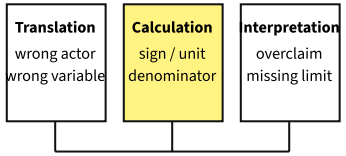
test info · enforcement · equity

Source policy route redrawn: match the tool to the failure, then test implementation.

IF YOU SEE...	ASK...
Varying damages across firms	Does a uniform standard preserve marginal incentives?
Few parties, clear rights	Could bargaining address the external effect?
Non-rival, hard to exclude	Is public provision the relevant comparison?
Tax equal to damage	Is MEC known and enforceable?

21 · Classic Traps ALL CHAPTER LIMITS

TEMPTING SHORTCUT	CORRECT RESPONSE
Mean rose → everyone better off	Check distribution, prices, households and environment
Higher output → cheaper technique	Standardise output by paid input or unit cost
Higher wage → hours must rise	Substitution and income effects can oppose
Nash equilibrium → good outcome	Stability is not efficiency or fairness
Voluntary bargain → equal power	Inspect outside options, rules and division
Positive job rent explains everything	Conditions, effort, monitoring and search duration matter
Elastic demand → profit direction known	Elasticity gives revenue direction; profit needs cost
Market clears → socially efficient	Check competition, information and external effects
One interest rate → full credit story	Add risk, collateral, fees and unequal access
External cost found → efficient Q found	Compare SMC with marginal benefit

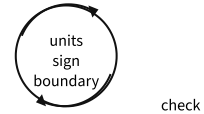


repair the first failed line

Error log: classify the first divergence before copying a full solution.

22 · Formula Recall Grid TEN CHECKPOINTS

TASK	CHECKPOINT	MEANING
Growth	$g=(y_1-y_0)/y_0$	proportional change
Production	$AP^L=q/L$	output per labour unit
Time	$c=m+w(T-t)$	feasible consumption
Game	$u_i(a_i^*,a_{-i}^*)\geq u_i(a_i,a_{-i}^*)$	unilateral best response
Bargain	$S=V-R^A-R^B$	joint agreement surplus
Job	$R_e=w-c-z$	value above fallback
Demand	$\varepsilon^D=\%\Delta Q^D/\%\Delta P$	responsiveness
Market	$Q^D(P^*)=Q^S(P^*)$	planned quantities equal
Credit	$PV=FV/(1+r)^t$	discount across dates
Externality	SMC=PMC+MEC	private + external cost



Verification loop: predict direction, calculate, then test units, sign and boundary.

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