ECON10003 Introductory Macroeconomics

THE UNIVERSITY OF MELBOURNE · ECONOMICS · UNDERGRADUATE · SEMESTER 2, 2026 · EXAM REVISION SHEET

Full guide + ask Sia about ECON10003

SIDE 1/2 FINAL PRIORITIES · DEFINITIONS → FORMULAS → DECISIONS → CHECKS

EXAM REVISION SHEET

v2 · 2026-10-25

1 · Exam Map

2026 SUBJECT GUIDE

20	10	20	10	FINAL 40

Assessment weights: test 20 · presentation 10 · group assignment 20 · tutorial 10 · examination 40.

COMPONENT	WT	FORMAT / TIMING
Mid-semester test	20%	Individual, in person · 2 Sep 2026
In-tutorial presentation task	10%	Group · Weeks 4–12
Written group assignment	20%	Empirical + problem solving
Tutorial attendance, participation and discussion	10%	Individual · Weeks 2–12
End-of-semester examination	**40%**	Individual · two hours · assessment period

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

The 2026 Subject Guide says students must pass the end-of-semester examination to pass the subject; the numeric passing threshold is not published in the passage held here. Treat that as a separate hurdle from tutorial attendance.

1b · Answer Ledger

ALL SIX CHAPTERS

LINE	WRITE	CHECK
1 Define	Object, variables, units, timing	Same boundary?
2 Relate	Identity / behaviour / equilibrium	Correct role?
3 Solve	Substitute; preserve sign + denominator	Units survive?
4 Reconcile	Put result into originating relation	Both sides agree?
5 Interpret	Magnitude, direction, horizon, boundary	No causal overclaim?

★ ***Identity*** enforces consistency; a ***behavioural equation*** specifies response; an ***equilibrium condition*** identifies where plans agree. Do not let one relation do another relation's job.

EXAM TIP *If stuck, write the unit on every input. A changed denominator, stock-flow mix-up or inverted quotation becomes visible before the arithmetic spreads.*

1c · Priority Ladder

TOPIC MAPS + FAQ

PRIORITY	WHAT A COMPLETE ANSWER SHOWS
1 Definition	Domestic/period boundary; stock or flow; price, quantity or rate; quotation if relative.
2 Formula	Every symbol defined, base-period denominator visible, percentages converted where exact multiplication is used.
3 Decision	Why this identity, behavioural rule or equilibrium condition matches the cue.
4 Working	Substitution with signs, units and autonomous versus induced terms preserved.

2 · GDP Boundary + Identity

C1 · P1

GDP = market value of **final production** within the domestic boundary over a period. Production, expenditure and income reconcile because spending on output pays income for that output.

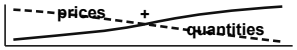
EXPENDITURE IDENTITY

$Y = C + I + G + (X - M)$ · $NX = X - M$

ITEM	TREATMENT	WHY
Final domestic good	Count once	Current domestic production
Intermediate input	Exclude	Already embodied in final output
Imported consumer good	+C and −M	Domestic GDP unchanged
Transfer payment	Not G	No purchase of current output
Wealth	Not current GDP	Stock, not period production

SOURCE CHECK

C 620 + I 180 + G 250 + X 90 - M 120 = Y 1,020, not 1,140.



Hold prices fixed before calling GDP growth real. [C1]

2b · Nominal, Real, Deflator

C1 · P2–3

PRICE-QUANTITY SPLIT

$Y^{nom} = \Sigma p_t q_t$ · $Y^{real} = \Sigma p_\beta q_t$

$P^{GDP} = 100 \times Y^{nom}/Y^{real}$

$gY = (Y_t - Y_{t-1})/Y_{t-1}$

QUESTION CUE	USE	STATE
Dollar value this year	Current p × current q	Nominal GDP
Volume / production growth	Common-price totals	Base-year price basis
Domestic-output prices	Nominal ÷ real ×100	GDP deflator
Per-person growth	Real Y / population	Both intervals

Base year: 100×2 + 50×4 = 400. Current nominal: 110×3 + 55×5 = 605. Current real at base prices: 110×2 + 55×4 = **440**; real growth = (440−400)/400 = 10%. If population rises 100→105, real GDP/person goes 4→about 4.19, near **4.8%**.

BOUNDARY *Real GDP is a volume index, not complete welfare: household production, distribution, environmental cost and leisure are outside or imperfectly inside it.*

BASE-EFFECT TRAP *A large rebound after a fall can coexist with output below its earlier path. Report both the level and growth rate, with the interval and earlier-value denominator.*

3 · Prices + Interest

C2 · P1–2

Inflation is growth in a declared price-level index, not the level itself. Keep the same index concept in numerator and denominator and name periods and basket convention.

INFLATION

$\pi_t = (P_t - P_{t-1})/P_{t-1}$

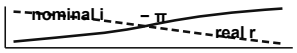
INDEX	COVERAGE	COMPOSITION
CPI	Consumer basket	Fixed-basket concept
GDP deflator	Domestically produced final output	Changes with production

Basket cost 210→218.40 gives (218.40−210)/210 = **4%**. A later level 222.77 gives roughly **2%** next-period inflation. A four per cent index rise is not a four percentage-point change in inflation.

FISHER RELATION

$1 + i = (1 + r)(1 + \pi)$

$r = (1+i)/(1+\pi) - 1$ · $r \approx i - \pi$



Expected π: ex ante · actual π: ex post. [C2]

3b · Labour Stocks + Flows

C2 · P3

LABOUR POOL

$L = E + U$ · $u = U/L$

$U_{t+1} - U_t = sE_t - fU_t$

IF YOU SEE	DO	AVOID
Employed + unemployed	Build L first	Including non-participants
Separations + job finding	Update U, then E	Recomputing rate too early
Stable u	Inspect both flows	Calling labour market unchanged
Participation change	Rebuild denominator	Holding L fixed silently

With E=900 and U=100, L=1,000 and u=10%. If 30 employed people separate and 20 unemployed people find work: U′=100+30−20=**110**, E′=900−30+20=**890**, L′=1,000, u′=11%.

EXAM TIP *A negative realised real return does not mean a negative nominal payment; it means purchasing power grew more slowly than the price level or fell.*

3c · Timing + Denominator Audit

C2 FAQ + LIMITS

OBJECT	NUMERATOR	DENOMINATOR / TIMING
Inflation	$P_t - P_{t-1}$	Earlier price level P_{t-1}
Exact real rate	1+i	1+expected π for ex ante; actual π for ex post
Unemployment rate	U after relevant flows	Contemporaneous E+U

4 · Planned Expenditure

C3 · P1

In the simple model, consumption has autonomous spending and an income-induced component. Investment and government purchases are autonomous. Expand consumption first, collect the intercept, then read the coefficient on output.

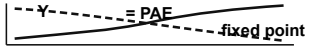
BEHAVIOURAL SCHEDULE

$C = \bar{C} + c(Y - T)$

$PAE = \bar{C} + c(Y - T) + \bar{I} + \bar{G} = \bar{A} + cY$

PART	MEANING	EXAM CHECK
Ā	Autonomous intercept	Collect $\bar{C} - cT + \bar{I} + \bar{G}$
c	Marginal propensity to consume	0≤c<1 for finite stable multiplier
PAE	Planned spending schedule	Not realised-expenditure identity
Y=PAE	Short-run equilibrium	Unintended inventory change = 0

With C=80+0.75(Y−100), I=120 and G=150: PAE = 80−75+120+150+0.75Y = 275+0.75Y.



At Y=PAE, unintended inventory change is zero. [C3]

4b · Equilibrium + Multipliers

C3 · P2–4

SOLVE + SHOCK

$Y* = \bar{A}/(1-c)$

$k^G = 1/(1-c)$ · $k^T = -c/(1-c)$

$\Delta Y = k \times$ initial autonomous change

PAE AGAINST Y	INVENTORIES	FIRM RESPONSE
PAE > Y	Fall unexpectedly	Raise output
PAE = Y	No unintended change	Equilibrium
PAE < Y	Rise unexpectedly	Cut output

For PAE=275+0.75Y: 0.25Y=275, so Y*=**1,100**. Check: 275+0.75(1,100)=1,100. With c=.75, k^G=4; ΔG=20 gives ΔY=**80**. A tax rise of 20 gives ΔY=[−.75/.25]20=**−60**.

Assumptions bite: fixed prices, spare capacity and stated autonomous components. Imports, taxes, price adjustment, interest responses and capacity constraints can shrink or reshape the realised effect.

4c · Multiplier Audit

C3 FAQ + TRANSFER

ROUND	ΔG CASE, C=.75	CUMULATIVE
Initial	20	20
Induced 1	.75×20 = 15	35
Induced 2	.75×15 = 11.25	46.25
Continue	Geometric series	20/(1−.75)=80

5 · Fiscal Policy

C4 · P1

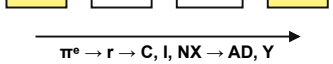
Government purchases enter PAE directly. Net taxes alter disposable income and consumption. Transfers belong inside the net-tax measure used by the question; a transfer is not a government purchase of current output.

BUDGET RELATION IN THE GUIDE

$G_t + i_t B_t = T_t + (B_{t+1} - B_t)$

INSTRUMENT	FIRST LINK	THEN DISTINGUISH
ΔG	Direct ΔPAE	Initial shock vs multiplier total
ΔT	Δdisposable income → cΔT	Tax effect vs purchase effect
Transfer	Net-tax / income channel	Not G
Automatic stabiliser	Changes with activity	No new discretionary decision
Deficit	Financing outcome	Not automatically expansionary or unsustainable

If output weakens and net taxes fall by 15, with c=.75 the first-round consumption support is .75×15=11.25. Do not report 11.25 as the full equilibrium response unless the question asks only for the first round.



$\pi^e \rightarrow r \rightarrow C, I, NX \rightarrow AD, Y$

then name lag, exposure and horizon

Policy: expectation → rate → spending → AD/output. [C4]

5b · Monetary + AD

C4 · P2–3

REAL-RATE AND DEMAND RELATIONS

$r \approx i - \pi^e$

$Y - Y* = -a_Y(\pi - \pi*) + \varepsilon^D$

IF YOU SEE	DO	SAY
Policy-linked i changes	Hold / update π^e as stated	Real-rate movement
r rises	Trace interest-sensitive spending	Other things equal, spending weakens
Exchange / asset channel	Name affected component	AD shift, not vague "economy falls"
Impact differs	Separate borrowers, savers, sectors	Lags + uneven exposure

i rises 4%→5.5%, expected inflation stays 2%: approximate r rises **2%→3.5%**. Interest-sensitive spending should weaken, other things equal. Fixed-rate borrowers, savers and exchange-sensitive sectors need not move together.

EXAM TIP *Label instrument, timing and persistence before using a multiplier. A demand effect and the government financing identity are different objects.*

6 · Saving → Capital → Growth

C5 · P1–2

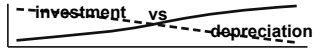
CLOSED-ECONOMY CONSISTENCY

$S_p = (Y-T)-C$ · $Sg = T-G$

$Snational = S_p + Sg = I$

RELATION	ROLE	DO NOT CLAIM
$S_p + Sg = I$	Accounting consistency	Every saving choice instantly causes I
$K_{t+1}-K_t=I_t-\delta K_t$	Stock accumulation	Gross I equals net addition
$gY = gA + \alpha gK + (1-\alpha)gL$	Growth attribution	Deep causes identified

Always depreciate the **opening** capital stock, reconcile the closing stock, then use growth accounting with stated shares. A level equation and a growth decomposition answer different questions.



Net capital change = investment − depreciation. [C5]

6b · Trade + Exchange Rates

C6 · P1–2

TASK	DECISION RULE	CHECK
Comparative advantage	Lower opportunity cost	Same units both countries
Terms of trade	Between domestic trade-offs	Both sides gain in model
Real exchange rate	Use declared quotation	Invert ratio + words together

COURSE CONVENTION

E = domestic currency / foreign currency

$RER = EP/P^f$ · $gRER \approx gE + gP - gP^f$

A: 12 wheat or 6 cloth ⇒ OC(1 cloth)=**2 wheat**. B: 8 wheat or 8 cloth ⇒ OC(1 cloth)=**1 wheat**. Thus B has comparative advantage in cloth; A in wheat. This establishes possible gains, not automatic compensation or equal benefit.

E=1.50, P=120, P^f=150 ⇒ RER=1.50×120/150= 1.20. If gE=3%, gP=4%, gP^f=2%, real depreciation is about **5%** under the course convention.

CLASSIC TRAP *A correct ratio with an unstated inverse quotation can produce the opposite verbal conclusion. Write the quotation before any calculation.*

6c · Long-Run + Open Audit

C5–C6 FAQ

BEFORE CONCLUDING	RECONCILE	BOUNDARY
Saving finances I	$S_p + Sg = I$	Closed economy; consistency, not instant causation
Capital deepens	$K' = K + I - \delta K$	Opening stock and period timing

Forward this to your tutorial group

SHARED BY _____

Semester 2 examination period, 2–20 November 2026.

Check your exam instructions on the LMS for what you may bring; use this sheet to revise and self-test.

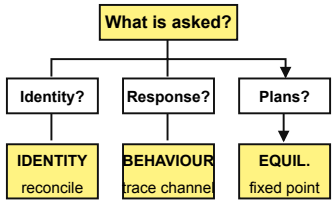
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SIDE 2/2 SELF-TEST · FIVE WORKED DRILLS · JUDGEMENT CARDS · CLASSIC TRAPS · EXAM-MORNING PLAN EXAM REVISION SHEET v2 · 2026-10-25

7 · Method Chooser C1–C6



Choose: identity, behaviour or equilibrium. [C1–C6]

CUE	METHOD	FIRST MOVE
Final domestic production	GDP identity	Classify C/I/G/X/M
Price or volume?	Nominal/real/deflator	Write p, q, base year
Index over time	Inflation	Declare index + earlier base
Return after prices	Fisher	Ex ante or ex post?
People change status	Labour flows	Update stocks, then rate
Planned spending	PAE	Substitute C; collect intercept
Plans equal output	Fixed point	Set Y=PAE
Autonomous shock	Multiplier	Identify G vs T
Saving / investment	Closed identity	Separate private + government
Capital over time	Accumulation	Depreciate opening K
Who specialises?	Opportunity cost	Same units; compare ratios
Currency + prices	RER	Write quotation first

7b · Universal Check GUIDE STRATEGY

```
define → relate → substitute → reconcile → interpret → name boundary
```

If a calculation cannot be placed back into its originating relation with the same units and timing, it is not ready for interpretation. Test one boundary: c→0, inflation→0, I=δK, X=M, or no labour flows, as relevant.

JUDGEMENT *If the prompt asks "why", a clean identity is only the consistency layer; add the specified behavioural channel before making a causal claim.*

7c · Fast Formula Index C1–C6 FORMULA PAGES

TARGET	RELATION	NON-NEGOTIABLE CHECK
GDP	$Y=C+I+G+(X-M)$	Domestic final output
Deflator	$100V^{nom}/V^{real}$	Same output set
Growth	$(x_t-x_{t-1})/x_{t-1}$	Earlier base

8 · Drill 1 – GDP + Growth C1 WORKED VALUES

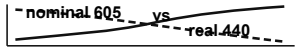
A · EXPENDITURE GDP

Given: C=620, I=180, G=250, X=90, M=120.

```
NX = 90-120 = -30
Y = 620+180+250-30 = 1,020
```

1. Imports carry a minus sign inside net exports.
2. Check: 620+180+250+90−120=1,020.
3. Interpret: market value of final domestic production in the period.

TRAP	WRONG PATH	REPAIR
Imports	Add X and M	Use X−M
Imported consumption	Count as domestic	+C offset by −M
Transfer	Put in G	No current-output purchase



Current prices give 605; base prices give 440. [C1]

B · PRICES, QUANTITIES, PEOPLE

LINE	CALCULATION	RESULT
Base GDP	100×2 + 50×4	400
Current nominal	110×3 + 55×5	605
Current real	110×2 + 55×4	440
Real growth	(440−400)/400	10%
Real/person	4 → 440/105	≈4.19
Per-person growth	(4.19−4)/4	≈4.8%

Answer path: label the price basis → total p×q → compute ratio using the earlier value → report both level and rate when base effects matter. Population growth explains why 10% aggregate growth becomes only about 4.8% per person.

SELF-TEST *Which output total is 605? Nominal. Which is 440? Real at base prices. What is incomplete without a price basis? Any real GDP or price-index label.*

8b · GDP Judgement Cards C1 FAQ

IF YOU SEE X	→ DO Y	WHY
Imported final consumer good	Record in C and M	Consumption rises; domestic output does not
Intermediate purchase	Trace into final good	Avoid double counting
Old wealth stock	Keep outside current GDP	Not production in this period
Transfer payment	Trace disposable income	Not a government purchase
Higher current-dollar GDP	Split p and q	Nominal mixes prices + quantities
Population also rises	Compute real Y/person	Aggregate rate can overstate per-person gain

9 · Drill 2 – Prices + Labour C2 WORKED VALUES

A · INFLATION SEQUENCE

```
π₁ = (218.40-210)/210 = 4%
π₂ = (222.77-218.40)/218.40 ≈ 2%
```

Answer path: name the same index in both periods → subtract earlier level → divide by earlier level → state interval. The index level still rises while inflation slows from 4% to about 2%.

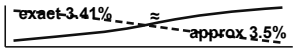
IF THE PROMPT SAYS	REPORT
Price level rose 4%	Percentage change in index
Inflation 4%→2%	Fall of 2 percentage points
Household experience	Index is designed statistic; basket may differ

B · FISHER EXACT VS APPROXIMATE

Given: nominal i=6%, expected π=2.5%.

```
Approx: r ≈ 6%-2.5% = 3.5%
Exact: r = 1.06/1.025-1 ≈ 3.41%
```

Convert percentages to decimals for the exact identity. The 0.09 percentage-point gap is from the cross-product in the multiplicative relation.



Fisher: exact 3.41%; approximation 3.5%. [C2]

C · UNEMPLOYMENT AFTER FLOWS

STOCK	START	FLOW	END
E	900	−30 +20	890
U	100	+30 −20	110
L	1,000	0	1,000
u	10%	recompute	**11%**

Answer path: keep non-participants outside L → separation enters U → job finding leaves U → reconcile E+U=L → only then divide. Many people finding jobs can coexist with rising U when separations are larger.

JUDGEMENT *An unchanged unemployment rate can hide large offsetting flows; a participation change can move the rate without the same change in employment conditions.*

9b · Prices/Labour Trap Matrix C2 LIMITS

CLAIM	VERDICT	CORRECTION
"A high P means high π"	Wrong	π is growth of P
"4% to 2% is down 2%"	Ambiguous	Down 2 percentage points
"CPI = GDP deflator"	Wrong	Consumer basket vs domestic output
"r=3.5% exactly"	Wrong here	Approximation; exact ≈3.41%

10 · Drill 3 – Keynesian Cross C3 WORKED VALUES

Given: C=80+.75(Y−100), I=120, G=150.

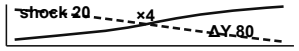
STEP	OPERATION	RESULT
1 Expand C	80+.75Y−75	5+.75Y
2 Build PAE	5+.75Y+120+150	275+.75Y
3 Equilibrium	Y=275+.75Y	.25Y=275
4 Solve	275/.25	**Y*=1,100**
5 Reconcile	275+.75(1,100)	1,100 ✓

The 275 intercept is earned by substitution; it is not 80+120+150 because taxes reduce induced consumption by .75×100=75.

SHOCK DECOMPOSITION

```
c=.75 ⇒ kᴳ=1/.25=4; kᵀ=-.75/.25=-3
ΔG=+20 ⇒ ΔY=4×20=+80
ΔT=+20 ⇒ ΔY=-3×20=-60
```

The government-purchase multiplier starts with a direct 20-unit PAE change; the tax multiplier starts with consumption changing by −cΔT. Keep **first round** separate from the total fixed-point response.



ΔG=20, c=.75 → multiplier 4 → ΔY=80. [C3]

10b · Policy Judgement Cards C4

IF YOU SEE X	→ DO Y
Net taxes fall 15, c=.75	First-round C support = 11.25
i 4%→5.5%, π^e=2%	Approx r 2%→3.5%; trace C/I/NX
"Deficit" alone	Ask composition, cycle, interest costs, capacity
Rate announcement	Name expectation, transmission channel, lag
AD conclusion	Separate shift from movement along another relation

Assumption sentence: "Under fixed prices, spare capacity and the stated autonomous components…" Then interpret. Policy transmission has lags and heterogeneous exposure.

TRAP *A budget identity does not tell you the size of a demand response; a multiplier does not by itself establish fiscal sustainability.*

10c · Fixed-Point Diagnostics C3–C4 FAQ

OBSERVED LINE	WHAT IT EARNS	WHAT IS STILL MISSING
PAE=275+.75Y	Correct intercept + slope	Equilibrium condition
Y=PAE	Plans equal production	Algebra + inventory mechanism
Y*=1,100	Solved fixed point	Back-substitution + boundary
k^6=4	Total/initial shock ratio	Shock size and sign

11 · Drill 4 – Saving + Growth C5 WORKED VALUES

A · CLOSED-ECONOMY SAVING

Given: Y=1,000, T=180, C=650, G=220.

```
Sₚ=(1,000-180)-650=170
Sg=180-220=-40
Snational=170-40=130=I
```

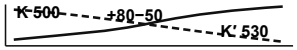
CHECK	REASON
Private saving uses Y−T	Disposable income belongs to households
Government saving may be negative	T−G is −40 here
National uses both sectors	170+(−40)=130
I=130 only in stated closed model	Boundary matters

Interpret: the identity is reconciled; it does not independently explain the interest rate or adjustment bringing saving and investment plans together.

B · CAPITAL ACCUMULATION

Given: opening K=500, I=80, δ=10%.

```
Depreciation=.10×500=50
K'=500+80-50=530
```



K: 500 + 80 − 50 = 530; net addition 30. [C5]

C · GROWTH ACCOUNTING

Given: gA=1%, gK=4%, gL=2%, α=.35.

```
gY = 1% + .35(4%) + .65(2%)
= 1% + 1.4% + 1.3% = 3.7%
```

CONTRIBUTION	VALUE	MEANING
Productivity	1.0 pp	gA
Capital	1.4 pp	αgK
Labour	1.3 pp	(1−α)gL
Total	3.7%	Attributed output growth

Do not add raw 4% and 2%; weight input growth by the stated shares. Attribution within the model does not identify the deep causes of productivity. Interpret capital per worker and distribution separately from aggregate growth.

SELF-TEST *Why can a large K coexist with slow current growth? The inherited stock is a level; current growth depends on investment net of depreciation, labour and productivity growth.*

11b · Stock–Flow–Growth Matrix C5 TRANSFER

OBJECT	TYPE	SOURCE EXAMPLE	INTERPRETATION GUARDRAIL
K	Stock	500 opening; 530 closing	Level at a point in time
I	Period flow	80 gross	Not all net addition

12 · Drill 5 – Trade + RER C6 WORKED VALUES

A · OPPORTUNITY COST

COUNTRY	POSSIBILITIES	OC OF 1 CLOTH	CA
A	12 wheat or 6 cloth	12W/6C = 2W	Wheat
B	8 wheat or 8 cloth	8W/8C = 1W	Cloth

Answer path: choose the same target good → form both opportunity costs in the same units → lower OC gets comparative advantage → proposed terms of trade must lie between the two domestic trade-offs.

B · REAL EXCHANGE RATE

Declare: E = domestic currency per unit of foreign currency.

```
RER = EP/Pᶠ = 1.50×120/150 = 1.20
gRER ≈ 3%+4%-2% = 5%
```

Under the course convention, the growth decomposition is read as about 5% real depreciation. If the quotation is inverted, invert the formula and the verbal direction together.

Opportunity cost same good + units compare ratios	**Absolute output** not the CA rule level only
Nominal rate E write quotation before direction	**Real rate EP/Pᶠ** currency + prices invert words too

Fix units before opportunity-cost or RER direction. [C6]

12b · Classic Traps C1–C6

TRAP	FAST CORRECTION
Nominal growth called real	Hold prices fixed
Rate denominator is current value	Divide by prior-period level
Price level = inflation	Inflation is level growth
π^e / actual π swapped	Ex ante / ex post
Non-participants in L	L=E+U only
PAE treated as identity	It is behavioural until Y=PAE
First round = total	Apply multiplier only after cue
Gross I = net K addition	Subtract δK
Absolute = comparative advantage	Compare opportunity cost
RER direction guessed	Write E units; preserve convention

13 · Exam-Morning Plan GUIDE STRATEGY

1. Recite the core identities and name each relation's role.
2. Redo one ratio, one stock–flow update and one fixed point without notes.
3. For each miss, find the *first unsupported operation*, not just the final digit.

Forward this to your tutorial group

SHARED BY _____

Semester 2 examination period, 2–20 November 2026.

Check your exam instructions on the LMS for what you may bring; use this sheet to revise and self-test.