Exercises

1	2	3	4

Surname, First name

General Physics : mechanics (PHYS-101(en))
2023/24 - Final exam - Answer booklet

1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9
0	0	0	0	0	0	0

Do NOT open this booklet before the start of the exam. This document is double-sided and has **28** pages. Do not unstaple.

- Place your student card on your table.
- A single double-sided sheet of A4 paper (handwritten by you) may be brought to and used during the exam. No other material is permitted.
- Using a calculator or any electronic device is not permitted during the exam.
- Use a black or dark blue pen and clearly erase with correction fluid if necessary.
- If a question is wrong, the teacher may decide to nullify it.

Asteroid impact

1a Circle the quantities that are conserved:

total kinetic energy

total momentum

total angular momentum

1b K_i = ...

1c

$\vec{p}_i$ = ...

1d d_{CG} = ...

1e $\vec{L}_{Gi}$ = ...

1f I_G = ...

1g $\vec{\omega}_f$ = ...

1h

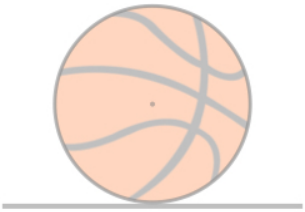
W = ...

Bouncing

2a d_c = ...

2b $\vec{v}_{ci}$ = ...

2c Draw the forces.



2d Maximum Δy_c = ...

Δt_c = ...

2e

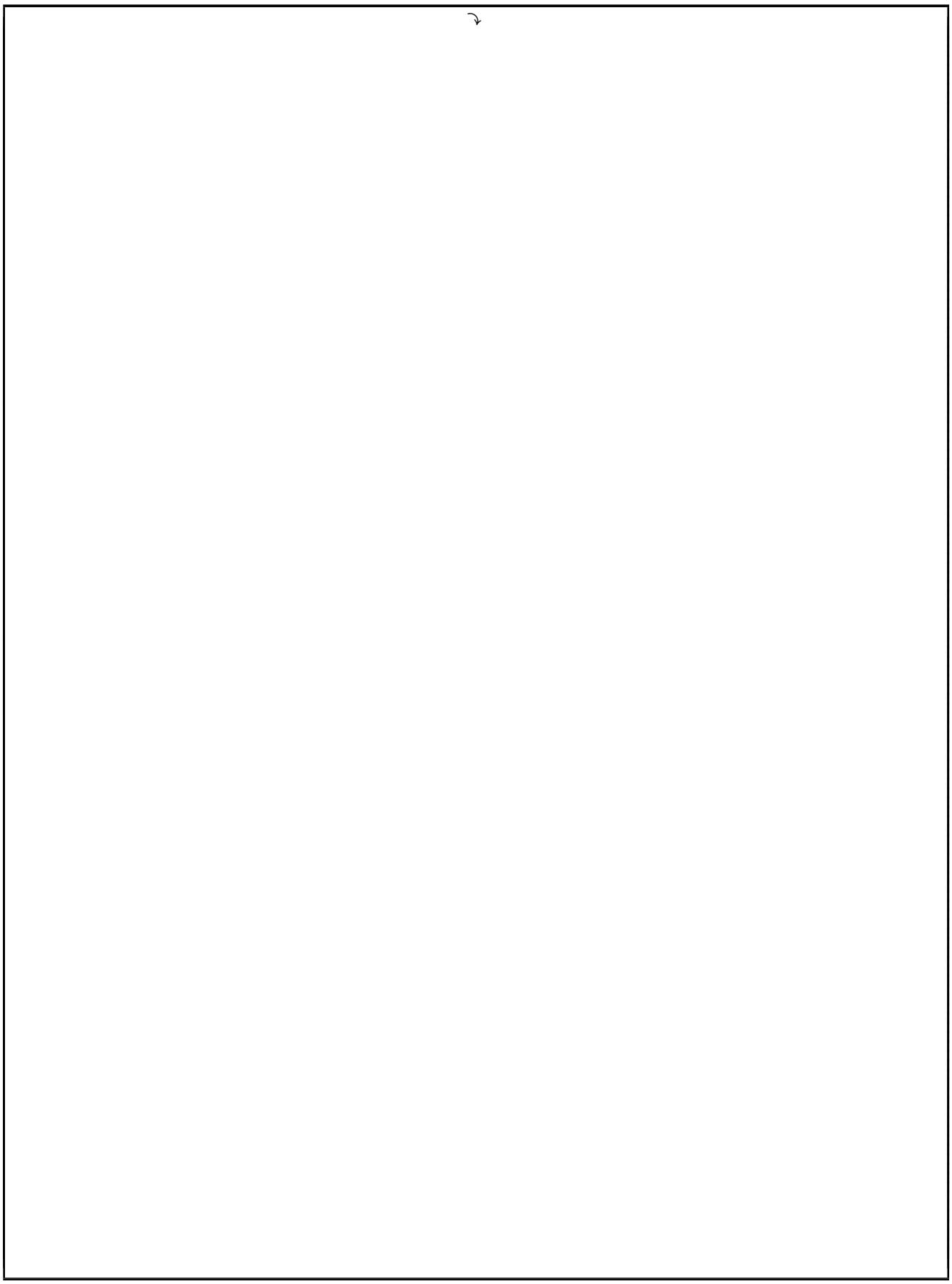
h_f = ...

d_f = ...

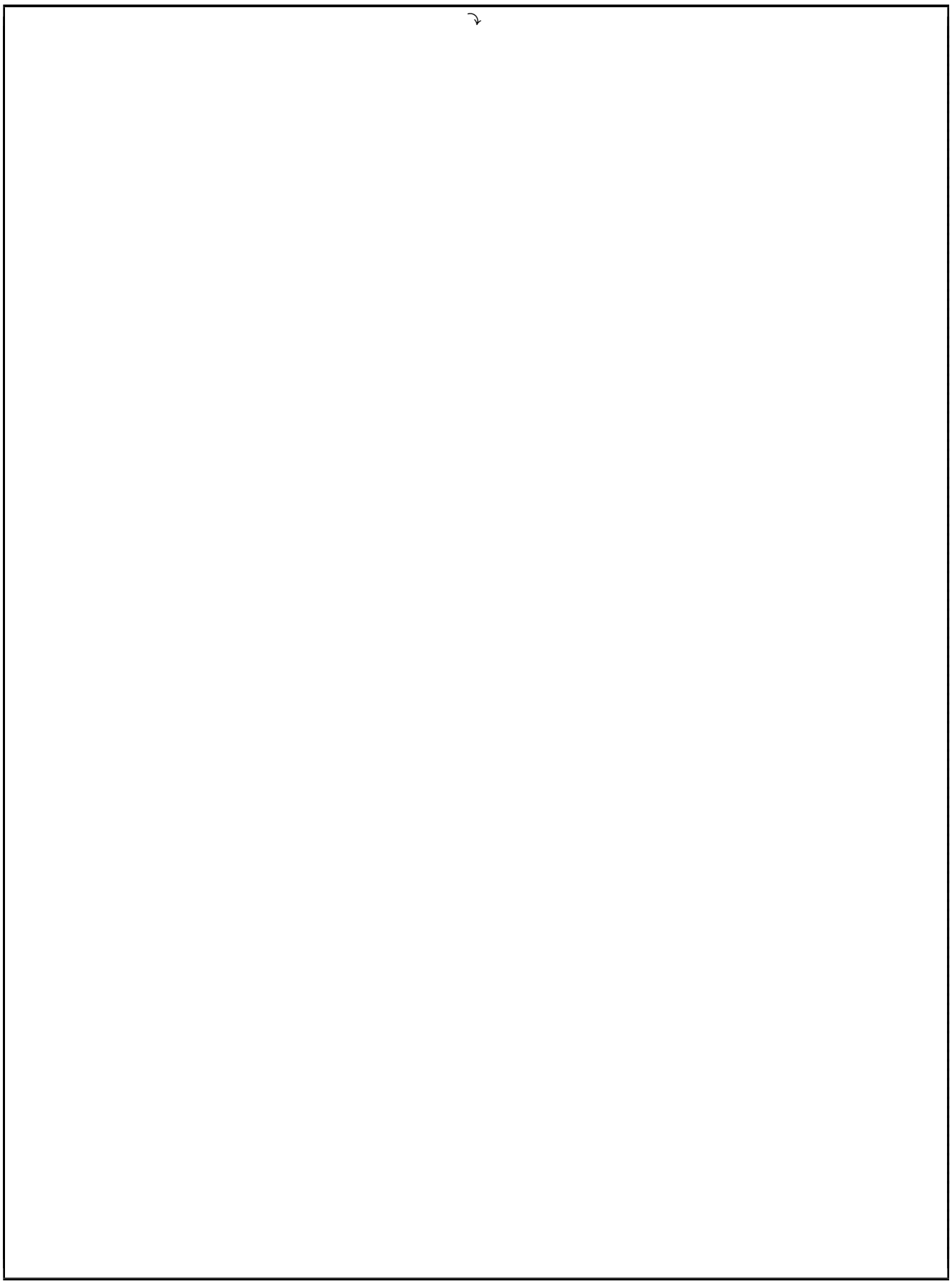
2f h_f = ...

d_f = ...

↳



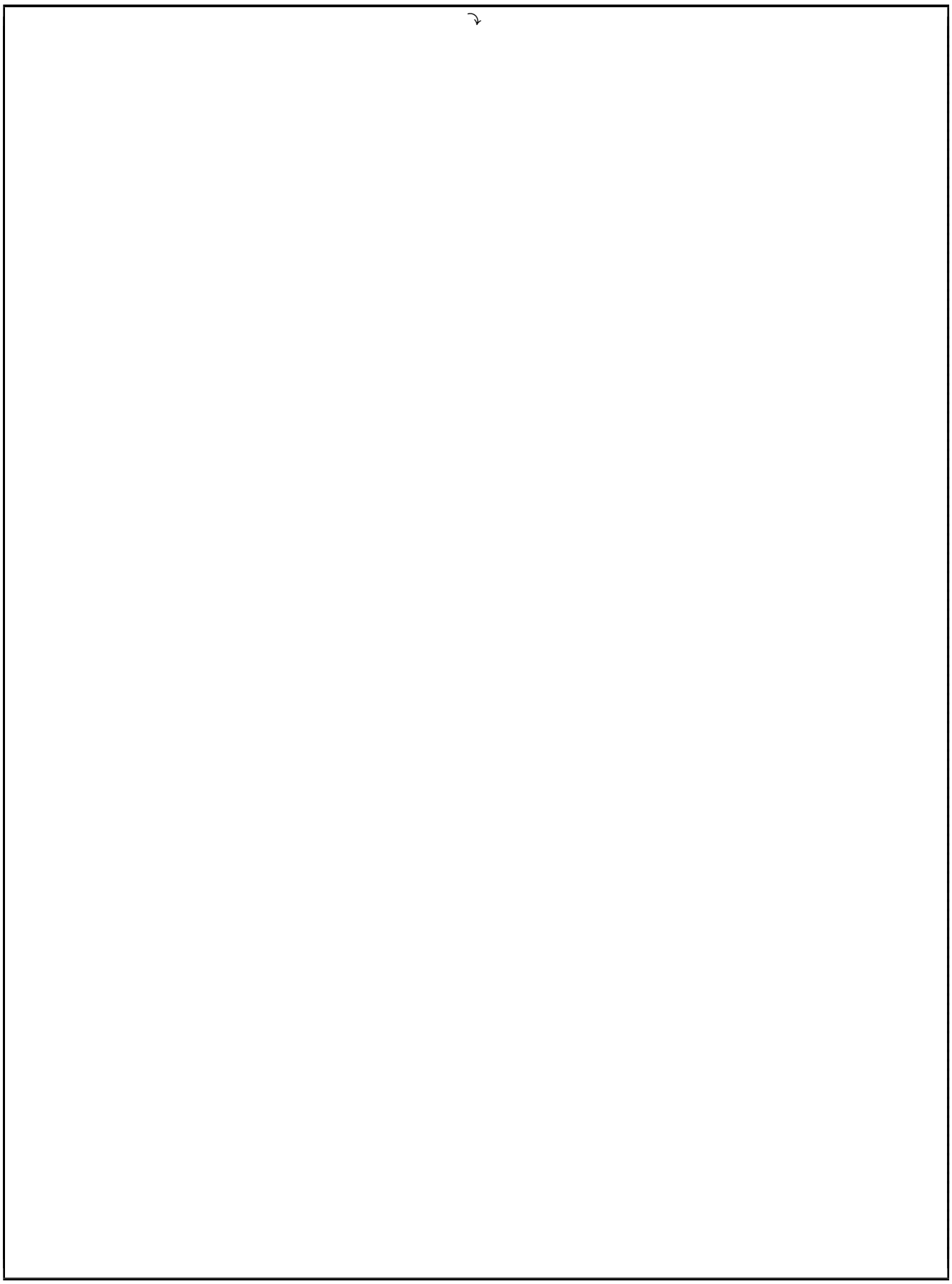
2g Largest μ = ...



Axe throwing

3a $x_b(t)$ = ...

$y_b(t)$ = ...



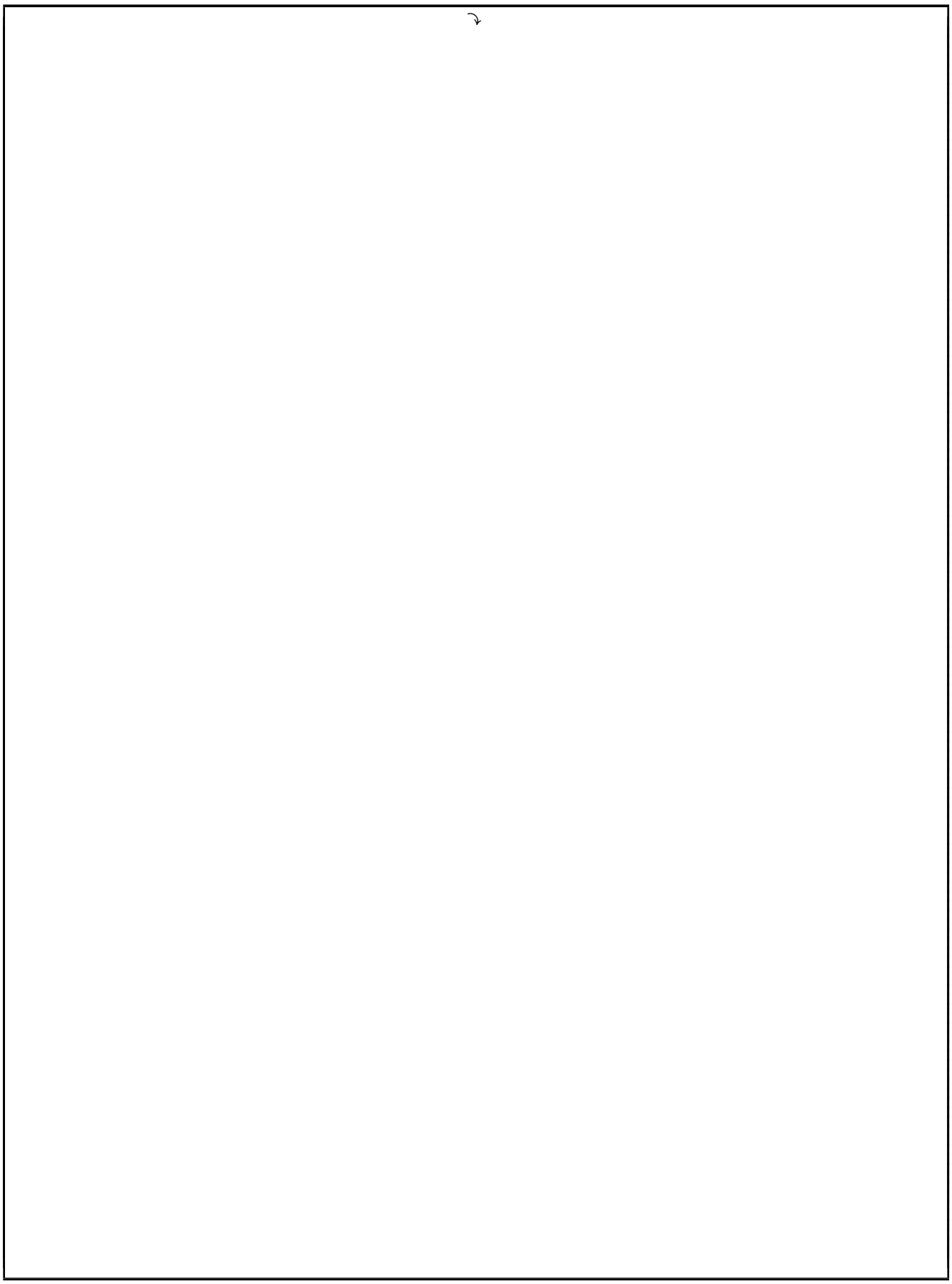
3b $F_h(t)$ = ...

3c v_{yi} = ...

ω_i = ...

3d .....

3e $\theta(t)$ = ...



3f Minimum ω_{p0} = ...

Extra space (if needed)

4a The work below is for part ..... of problem .....

4b The work below is for part ..... of problem .....

4c The work below is for part ..... of problem .....

4d The work below is for part ..... of problem .....