

QUICK REVIEW

Quick Review: Static Equilibrium and Stability

Refresh the most important ideas, relationships, and problem-solving strategies for Static Equilibrium and Stability in just a few minutes.

 TIME 5–10 minutes	 BEST FOR A rapid refresh	 FINISH WITH Key ideas refreshed
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After this quick review, you'll be able to...

quickly recall the equilibrium conditions, recognize stability and tipping, and choose the correct next step at the foundational level.

HOW TO USE THIS GUIDE

Work through the four stages in order. Write directly in the spaces provided, check your work in the Quick Answers section, and finish by choosing the next resource that matches your confidence.

Choose how you want to review: work through this guide, follow the online review, or watch the video review.

[Start the Review Online →](#)

[Watch the Video Review →](#)

YOU WILL NEED

Pencil or pen • Calculator if needed • Approximately 5–10 minutes

FR-02 • COURSE ALIGNMENT

Course Alignment

This Physics Sensei Unit Review is an independent learning resource. Use it to reinforce key concepts, prepare for homework, or review before a quiz or exam.

RESOURCE: Physics Sensei Unit Review
UNIT ID: MEC-U23
TOPIC: Static Equilibrium and Stability
COURSE LEVEL: Foundational

BEST USED

- ✓ After learning the unit
- ✓ Before starting homework
- ✓ Before a quiz or exam

FR-03 • YOUR REVIEW PLAN

Your Review Plan

Complete these four stages to quickly refresh the essential ideas and confirm you're ready to continue.

4 stages • Approximately 5–10 minutes

1 Quick Recall Refresh what you already know.	2 Essential Idea Review the most important concept.
3 Confidence Check Confirm you're ready to move on.	4 Next Step Continue your learning.

PRINTING TIP

For student copies, print double-sided and keep the Quick Answers section after the student activities so learners attempt each activity before checking their work.

FR-04 • STAGE 1 OF 4

Quick Recall

Let's quickly refresh what you already know. This short recall activity will bring the most important ideas back to mind before you review them.

QUICK RECALL**Recall Activity**

Recall the two conditions for an object to remain at rest and what makes an equilibrium stable.

Complete the statements: (1) The net force on an object in static equilibrium is _____. (2) The net turning effect about any point is _____. (3) A stable object tends to return toward its original position after a small tilt because its center of mass tends to _____.

Ready to refresh the essentials?

Great! Now review the most important idea you'll want to remember.

Review the Essential Idea →

FR-05 • STAGE 2 OF 4

Essential Idea

Take one last look at the most important concept from this topic. If you remember this idea, the rest will come back much more easily.

ESSENTIAL IDEA

Balance Forces, Balance Turning Effects

Static equilibrium requires both translational and rotational balance. The forces must cancel so the object does not accelerate, and the clockwise and counterclockwise turning effects must cancel so it does not begin to rotate.

$$\Sigma F = 0 \quad \bullet \quad \Sigma \tau = 0$$

EXAMPLE A level shelf can be at rest even when several forces act on it, as long as those forces balance and their turning effects cancel.

SENSEI NOTE An object can have zero net force and still rotate if the turning effects do not cancel.

Ready to check your memory?

You've refreshed the essential idea. Now see how much you remember before moving on.

Start the Confidence Check →

FR-06 • STAGE 3 OF 4

Confidence Check

You've refreshed the essential idea. Now answer this quick confidence check to confirm you're ready to move on.

CONFIDENCE CHECK**Will It Tip?**

Choose the best answer and explain briefly.

A box is slowly tilted. Its center of mass is still vertically above its base of support. Is it stable against tipping at that instant? A) Yes B) No

Ready for your next step?

Great work! You've refreshed the essential idea. Now choose the resource that best matches what you'd like to do next.

Choose Your Next Step →

QUICK ANSWERS • CHECK AFTER ATTEMPTING

Quick Answers and Explanations

Use these concise answers to check your recall and confidence—not only your final response.

QUICK RECALL**Recall Activity**

(1) zero; (2) zero; (3) move upward when displaced, so gravity tends to restore the object.

WHY IT WORKS Static equilibrium needs no linear acceleration and no angular acceleration. Stability depends on whether a small displacement creates a restoring tendency.

CONFIDENCE CHECK**CONFIDENCE CHECK****Will It Tip?**

A) Yes. If the center of mass remains above the support base, the weight does not yet create a tipping tendency about the edge.

WHY IT WORKS Tipping begins when the line of action of the weight passes beyond the support edge.

READINESS GUIDE

1 correct: You're ready to continue. • 0 correct: Revisit the Essential Idea or choose more practice.

FR-07 • STAGE 4 OF 4

Next Step: Continue Learning

Great work! You've completed this quick review. Choose the next resource that best matches how confident you feel.

? I'm Still Unsure Review the essential idea again. Review Again →	🎯 I Need More Practice Continue with additional practice for this topic. Go to Practice →	✓ I'm Ready Continue to the next recommended resource. Continue →
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RECOMMENDED LINKS

Review this topic again →

Find additional practice →

Choose another type of physics help →

Continue reviewing with these companion resources.

Start the Review Online →

Watch the Video Review →

PHYSICS HELP THAT MAKES SENSE

A Physics Sensei review never ends at the last question. It always guides you toward the next useful step.

PhysicsSensei.com