

## QUICK REVIEW

# Quick Review: Angular Momentum and Conservation

Refresh the most important ideas, formulas, and problem-solving strategies for angular momentum and conservation in just a few minutes.

|                                                                                                                  |                                                                                                                         |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <br><b>TIME</b><br>5–10 minutes | <br><b>BEST FOR</b><br>A rapid refresh | <br><b>FINISH WITH</b><br>Key ideas refreshed |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

**After this quick review, you'll be able to...**

**explain angular momentum, recognize the conservation condition, and apply foundational relationships with confidence.**

quickly recall the essential concepts, formulas, and problem-solving strategies needed to move forward with confidence.

## 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-U21  
**TOPIC:** Angular Momentum and Conservation  
**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

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

**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

Define angular momentum in words. State the condition for conservation. Predict what happens to angular speed when rotational inertia decreases in an isolated rotating system.

$L = I\omega$ . If net external torque is zero, angular momentum is conserved.

#### 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****Conservation of Angular Momentum**

Angular momentum describes rotational motion about a chosen point or axis. When net external torque is zero, total angular momentum remains constant.

**$L = I\omega$ . If net external torque is zero, angular momentum is conserved.**

EXAMPLE A skater pulls their arms inward:  $I$  decreases and  $\omega$  increases while total  $L$  stays constant.

SENSEI NOTE Choose the system and axis before applying conservation.

**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

#### One-Minute Check

A skater pulls their arms inward while spinning. What happens to angular speed if external torque is negligible?

$L = I\omega$ . If net external torque is zero, angular momentum is conserved.

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### 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**

Angular momentum is conserved when net external torque about the chosen axis is zero or negligible.

**WHY IT WORKS** The torque condition determines whether the system exchanges angular momentum with its surroundings.

**CONFIDENCE CHECK****CONFIDENCE CHECK****One-Minute Check**

Angular speed increases.

**WHY IT WORKS** Rotational inertia decreases, so  $\omega$  rises to keep  $L = I\omega$  constant.

**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.

|                                                                                                              |                                                                                                                                     |                                                                                                             |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <p>?</p> <p><b>I'm Still Unsure</b></p> <p>Review the essential idea again.</p> <p><b>Review Again →</b></p> | <p>🎯</p> <p><b>I Need More Practice</b></p> <p>Continue with additional practice for this topic.</p> <p><b>Go to Practice →</b></p> | <p>✓</p> <p><b>I'm Ready</b></p> <p>Continue to the next recommended resource.</p> <p><b>Continue →</b></p> |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|

### 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**