

## QUICK REVIEW

# Quick Review: Motion in One Dimension

Refresh the essential physical picture: direction, velocity, acceleration, and graph meaning.

|                                                                                                                  |                                                                                                                         |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <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...**

quickly recall how signs and acceleration describe straight-line motion and decide whether you are ready to continue.

**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 • UNIT ALIGNMENT

## Unit Alignment

This bundle is aligned to the approved Physics Sensei unit specification below. Use it to recover the unit structure, reinforce key decisions, and confirm readiness for the next study task.

|                                                                                                                                                    |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ARCHITECTURE: Physics Sensei Independent Mechanics<br>UNIT: MEC-U02 — Motion in One Dimension<br>SCOPE: Unit Review<br>PHYSICS LEVEL: Foundational | <b>BEST USED</b><br>✓ Before algebra-heavy kinematics homework<br>✓ When graph meaning or signs feel confusing<br>✓ When you want to understand the physics before calculating |
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### Review Prerequisites →

Physics Sensei is an independent educational resource. This review is independently authored and organized under the approved Physics Sensei mechanics architecture.

## 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 — page 4</b></p> <p>Refresh what you already know.</p>       | <p><b>2</b></p> <p><b>Essential Idea — page 5</b></p> <p>Review the most important concept.</p> |
| <p><b>3</b></p> <p><b>Confidence Check — page 6</b></p> <p>Confirm you're ready to move on.</p> | <p><b>4</b></p> <p><b>Next Step — page 8</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 2

Compare the signs of velocity and acceleration.

*A car is moving to the right but slowing down. If  $+x$  points right, what are the signs of velocity and acceleration?*

#### Ready to refresh the essentials?

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

[Continue to Essential Idea — page 5 →](#)

## FR-05 • STAGE 2 OF 4

# Essential Idea

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

## ESSENTIAL IDEA

### Velocity and acceleration describe different features of motion

Velocity tells how position changes and includes direction. Acceleration tells how velocity changes. An object speeds up when velocity and acceleration have the same sign and slows down when they have opposite signs.

$$\Sigma F_x = 0 \quad \cdot \quad \Sigma F_y = 0 \quad \cdot \quad \Sigma \tau = 0$$

EXAMPLE  $a_{\text{avg}} = \Delta v / \Delta t$ . Example: a cart moving left has  $v < 0$ . If it slows while moving left, acceleration points right, so  $a > 0$ .

SENSEI NOTE Negative acceleration does not automatically mean slowing down. Compare the signs of velocity and acceleration.

### Ready to check your memory?

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

[Continue to Confidence Check — page 6 →](#)

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

#### Speeding up or slowing down?

Compare the signs of  $v$  and  $a$ .

*An object has  $v = -6 \text{ m/s}$  and  $a = +2 \text{ m/s}^2$ . Is it speeding up or slowing down?*

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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.

**Continue to Next Step — page 8 →**

## 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 2**

$v > 0$  and  $a < 0$ .

**WHY IT WORKS** The car moves in  $+x$ , so velocity is positive. Because its positive velocity is decreasing, acceleration points in the opposite direction.

**CONFIDENCE CHECK****CONFIDENCE CHECK****Speeding up or slowing down?**

It is slowing down.

**WHY IT WORKS** Velocity and acceleration have opposite signs, so the magnitude of velocity decreases.

**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><b>?</b></p> <p><b>I'm Still Unsure</b></p> <p>Review the essential idea again.</p> <p><b>Review again: return to Essential Idea on page 5.</b></p> | <p><b>🎯</b></p> <p><b>I Need More Practice</b></p> <p>Continue with additional practice for this unit.</p> <p><b>Go to Practice →</b></p> | <p><b>✓</b></p> <p><b>I'm Ready</b></p> <p>Continue to the next recommended resource.</p> <p><b>Continue →</b></p> |
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### RECOMMENDED LINKS

**Review again: return to Essential Idea on page 5.**

**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**