

# ASTR 101 — Homework Demo Walkthrough

## What Good Work Looks Like

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This walkthrough shows you what a complete homework submission and grade memo look like. Use it as a model for your own work.

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### Sample Problem

**Problem:** The Sun is about 150 million km from Earth. Light travels at 300,000 km/s. How long does it take sunlight to reach Earth? Express your answer in minutes.

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### Stage 1: Solution (Monday Submission)

#### What a 5/5 Solution Looks Like

**Given:**

- Distance from Sun to Earth:  $d = 150 \times 10^6$  km
- Speed of light:  $c = 3 \times 10^5$  km/s

**Find:** Time for light to travel from Sun to Earth, in minutes

**Solution:**

Using time =  $\frac{\text{distance}}{\text{speed}}$ :

$$t = \frac{d}{c} = \frac{150 \times 10^6 \text{ km}}{3 \times 10^5 \text{ km/s}} = 500 \text{ s}$$

Converting to minutes:

$$t = 500 \text{ s} \times \frac{1 \text{ min}}{60 \text{ s}} = 8.3 \text{ min}$$

**Answer:** Light takes about **8.3 minutes** to travel from the Sun to Earth.

**Sanity check:** This is close to the “8 minutes” you often hear quoted — makes sense!

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**What a 2/5 Solution Looks Like**

$$150000000/300000 = 500$$

Answer: 500

**Why this is a 2:**

- No units shown
  - No setup explaining what's being calculated
  - Didn't convert to minutes (problem asked for minutes)
  - No sanity check or interpretation
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**Stage 2: Grade Memo (Wednesday Submission)**

**If You Got It Right**

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Problem	Score	Why this score?
1	5	Showed all steps, units consistent, converted to minutes, answer matches expected ~8 min

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**What was confusing?** Nothing major — I had to double-check the unit conversion from seconds to minutes.

**What would help?** I'll keep practicing scientific notation; I almost made an error with the powers of 10.

**Collaboration:** No

**AI Tools:** No

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## If You Made an Error

Let's say you forgot to convert to minutes and wrote "500 seconds" as your final answer.

Problem	Score	Why this score?
1	4	Method correct, units tracked, but didn't convert to minutes as asked

**What was confusing?** I didn't read carefully — missed that it asked for minutes, not seconds.

**What would help?** Before finishing, I'll re-read what the problem actually asks for. Circle the units in the question.

**Collaboration:** No

**AI Tools:** No

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## If You Struggled

Let's say you weren't sure how to set it up and guessed.

Problem	Score	Why this score?
1	2	Attempted but divided wrong quantities; didn't track units

**What was confusing?** I wasn't sure whether to multiply or divide. I guessed divide but I don't really understand why.

**What would help?** Review the "distance = speed  $\times$  time" relationship in the reading. Maybe try office hours to work through another example.

**Collaboration:** Talked to roommate briefly but still confused

**AI Tools:** No

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## Key Takeaways

1. **Show your work** — setup, reasoning, units, labeled answer
2. **Be honest in self-grading** — guessing correctly isn't a 5
3. **Reflection matters** — identifying what confused you is valuable
4. **Disclosure is required** — even if it's just "none"

The goal isn't perfection. It's **visible reasoning + honest self-assessment**.