

WARNING

This guide is not the only thing you should use to study. It does not provide you with everything you need. You should also rely on your textbook, homework, and classroom notes. Use everything you can for the best results.

Topic 1: Motion - Binder entries Page 1-3, textbook pg. 6 - 8

- True/False: An object is in motion if its distance from another object is changing.
- An object you use to compare and to determine if motion is occurring is called a:
a. Comparison object b. Force c. Newton d. Reference point
- Imagine you are sitting in a chair. It is both correct to say you are moving and you are not moving.
Which reference point below can be used to prove that you are moving?
a. The ground b. The chair you're sitting in c. The sun
- Match the statements with the correct type of reference point.
A An oak tree A. Stationary reference point
B Harder to identify motion with B. Moving reference point
B A person running
A Not moving and easier to use
- Imagine you are riding in a car. After looking out the window and looking throughout the car, which objects below would appear to be in motion? This is from your relative position.
✓ The person sitting next to you
✓ The ground
✓ The sun
____ The interior of the car
- Person A is standing on the platform of a train station, and person B is riding by the platform in a train.
Which person appears to be in motion, and which person is actually in motion?
Person A = Appears to be moving
Person B = Is actually moving

Topic 2: Distance - Binder entries 4-6, textbook pg. 9

- Why is it important for scientists to use the SI system of units?
So they can communicate clearly about measurements regardless of their native language.
- Match the following units with the type of measurement they are used for:
B meters A. Speed
D minutes B. Distance
A km/s C. Acceleration
C m/s² D. Time
- Match the following SI units of measurement with the distance you would use them to measure:
D The width of a blade of grass A. Meter (m)
A The length of your living room B. Kilometer (Km)
B The distance from Pennsylvania to New York C. Centimeter (cm)
C The length of your shoe D. Millimeter (mm)
- Convert the following SI units of measurement.
a. 621mm to Km: .000621 Km
b. 23Km to cm: 2,300,000 cm
c. 67m to Km: .067 Km

K H D m d cm mm

* Small to Large unit
move decimal to left.

* Large to Small unit
move decimal to right.

Topic 3: Acceleration – Binder entries page 10-12 textbook pg. 22 - 27

21. Acceleration is:

- a. The distance covered in a certain unit of time
- b. The distance between the starting point and the ending point
- c. The rate at which velocity changes**

22. Match the definitions with the correct type of acceleration:

- | | |
|--|--------------------------|
| B When an object slows down | A. Positive acceleration |
| A When an object speeds up | B. Deceleration |
| D When an object starts moving north and turns west | C. No acceleration |
| C When an object has constant speed | D. Change in direction |

23. At the top of a hill, a roller coaster car has a speed of 4 m/s. 3 seconds later, at the bottom of the hill, its speed is 22 m/s. What is its acceleration?

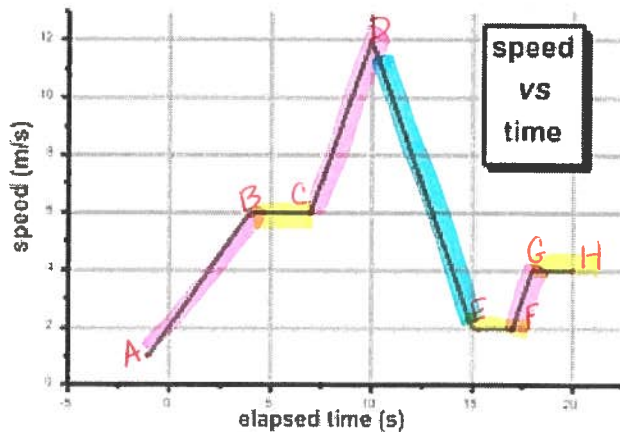
$$\text{Acceleration} = \frac{\text{Final Speed} - \text{Initial Speed}}{\text{Time}} = \frac{22\text{m/s} - 4\text{m/s}}{3} = 6\text{m/s}^2$$

24. A rocket can accelerate from rest to 70 km/min in 2 minutes. Find the rocket's acceleration.

Rest: 0m/s

$$\frac{70\text{Km/min} - 0\text{Km/min}}{2\text{min}} = 35\text{Km/min}^2$$

26. Use the speed versus time graph to answer the following questions about a car's motion.



a) Between which points was the car accelerating?

A-B, C-D, F-G

b) Between which points was the car decelerating?

D-E

c) Between which points was the car not accelerating?

B-C, E-F, G-H