

AP Physics 1 Summer Review Packet
All work is due Day 1 2021-2022
Summer 2021
Mr. Rick Kates katesr@maldecatholic.org

Welcome to AP Physics 1

This course focus is based on AP Physics 1 Big Ideas -Major Concepts

The big ideas serve as the foundation of the course and allow students to create meaningful connections among concepts. They are often abstract concepts or themes that become threads that run throughout the course. Revisiting the big ideas and applying them in a variety of contexts allows students to develop deeper conceptual understanding. Below are the big ideas of the course and a brief description of each.

BIG IDEA 1: SYSTEMS

Objects and systems have properties such as mass and charge. Systems may have internal structure.

BIG IDEA 2: FIELDS

Fields existing in space can be used to explain interactions.

BIG IDEA 3: FORCE INTERACTIONS

The interactions of an object with other objects can be described by forces.

BIG IDEA 4: CHANGE

Interactions between systems can result in changes in those systems.

BIG IDEA 5: CONSERVATION

Changes that occur as a result of interactions are constrained by conservation laws.

To get started, this summer packet is a mathematical review/concept to enable us to start off Day 1 into Kinematics.

Assignment

1. Review Chapter 1 in Textbook-Textbook is your reference guide.
2. Watch links to videos for review & examples.
3. Work on the problems assigned-Show all work on separate paper.

Reference: Physics for Scientists & Engineers 4Edition, [Knight] Chapter 1

Watch Video on What is Physics

<https://aplusphysics.com/courses/regents/videos/WhatIsPhysics/WhatIsPhysics.html>

Watch Video on Significant Figures.

<https://www.aplusphysics.com/courses/regents/videos/SigFigs/SigFigs.html>

Exam

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) The current definition of the standard meter of length is based on 1) _____
A) the length of a particular object kept in France.
B) the distance between the earth's equator and north pole.
C) the distance traveled by light in a vacuum.
D) the distance between the earth and the sun.
- 2) The current definition of the standard second of time is based on 2) _____
A) the frequency of radiation emitted by cesium atoms.
B) the oscillation of a particular pendulum kept in France.
C) the earth's rotation rate.
D) the duration of one year.
- 3) The current definition of the standard kilogram of mass is based on 3) _____
A) the mass of the sun.
B) the mass of the earth.
C) the mass a particular object kept in France.
D) the mass of a cesium-133 atom.
- 4) If a woman weighs 125 lb, her mass expressed in kilograms is x kg, where x is 4) _____
A) greater than 125. B) less than 125.
- 5) If a tree is 15 m tall, its height expressed in feet is x ft, where x is 5) _____
A) greater than 15. B) less than 15.
- 6) If a flower is 6.5 cm wide, its width expressed in millimeters is x mm, where x is 6) _____
A) less than 6.5. B) greater than 6.5.
- 7) Scientists use the metric system chiefly because it is more accurate than the English system. 7) _____
A) True B) False
- 8) When adding two numbers, the number of significant figures in the sum is equal to the number of significant figures in the least accurate of the numbers being added. 8) _____
A) True B) False
- 9) When determining the number of significant figures in a number, zeroes to the left of the decimal point are never counted. 9) _____
A) True B) False

- 18) What is the sum of 1123 and 10.3 written with the correct number of significant figures? 18) _____
- A) 1133
 B) 1.13×10^3
 C) 1133.3000
 D) 1.1×10^3
 E) 1133.3
- 19) What is the sum of $1.53 + 2.786 + 3.3$ written with the correct number of significant figures? 19) _____
- A) 8 B) 7.6 C) 7.62 D) 7.616 E) 7.6160
- 20) What is the difference between 103.5 and 102.24 written with the correct number of significant figures? 20) _____
- A) 1 B) 1.3 C) 1.26 D) 1.260 E) 1.2600
- 21) What is the product of 11.24 and 1.95 written with the correct number of significant figures? 21) _____
- A) 22 B) 21.9 C) 21.92 D) 21.918 E) 21.9180
- 22) What is the result of $1.58 \div 3.793$ written with the correct number of significant figures? 22) _____
- A) 4.166×10^{-1}
 B) 4×10^{-1}
 C) 4.1656×10^{-1}
 D) 4.2×10^{-1}
 E) 4.17×10^{-1}
- 23) What is $34 + (3) \times (1.2465)$ written with the correct number of significant figures? 23) _____
- A) 37.74 B) 4×10^1 C) 38 D) 37.7 E) 37.7395
- 24) What is $56 + (32.00)/(1.2465 + 3.45)$ written with the correct number of significant figures? 24) _____
- A) 62.8
 B) 62.8123846
 C) 62.81
 D) 63
 E) 62.812
- 25) Add 3685 g and 66.8 kg and express your answer in milligrams (mg). 25) _____
- A) 7.05×10^4 mg B) 7.05×10^7 mg
 C) 7.05×10^5 mg D) 7.05×10^6 mg

33) The height of the ceiling in a typical home, apartment, or dorm room is closest to

A) 100 cm.

B) 200 cm.

C) 400 cm.

D) 500 cm.

33) _____