Today in this class...

1. How to do HW

2. How to use iClicker

3. Chapter 1. Introduction

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**How to use iClicker**

1. Press On/Off button to turn on

2. Frequency setting: Press and hold ON/OFF button until power light flashes.

   Enter 2 key frequency code : A A
Chapter 1. Introduction

Fundamental quantities in Physics: Length, Mass, Time

Unit is important!

(British unit system, inch,...)

(Jet Propulsion Laboratory, California Institute of Technology)

Did not convert units!
Lost $1M Mars Climate Orbiter!
iClicker Quiz

What are the three basic units in the SI Unit system?

(a) pound, inch, hour
(b) m, kg, s
(c) m, g, s
(d) km, g, s
(e) m, cm, km

Ans: (b)

Today, we will learn

Prefixes for units
Conversion of units
Dimensional analysis
Math Review: Powers and Exponents

See notes and Appendix A.2 in B1

iClicker Quiz

$10^{-4} = ?$

(a) 10,000  
(b) 6  
(c) -10,000  
(d) 0.0001  
(e) 0.00001

Ans: (d)
**iClicker Quiz**

\[(10^{-2})^3 = ?\]

(a) \(10^{-6}\)
(b) \(10^{1}\)
(c) \(0.1\)
(d) \(-60\)
(e) \(-10\)

Ans: (a)

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**Prefix for SI unit**

3000 m = 3 \times 1000 m = 3 \times 10^3 m = 3 km \quad (1000 = \text{kilo} = k)

1,000,000,000 = 10^9 = \text{giga} = G

1,000,000 = 10^6 = \text{mega} = M

1,000 = 10^3 = \text{kilo} = k

0.005 s = 5 \times 0.001 s = 5 \times (1/1000) s = 5 \times 10^{-3} s = 5 ms

0.01 = 10^{-2} = \text{centi} = c

0.001 = 10^{-3} = \text{mili} = m

0.000 001 = 10^{-6} = \text{micro} = \mu

0.000 000 001 = 10^{-9} = \text{nano} = n
Example of Other units and conversion of units

1 mile = 1609 m ≈ 1.6 km

1 g = 0.001 kg = 10^{-3} kg

1 hour = 60 min = 60 \times 60 sec

Conversion factors

→ See Table A.1 in Appendix A in B2

Example 1

1 mile = 1609 m.

4.1 mile = ? m
Example 2:

3 cm  
3 cm  

Find the area in m²

Assignment

Create UT EID, request enrollment for the course, download and start HW #1: Introduction (Due 11 am, 9/16, Tuesday).

Announcement

Written quiz on Tuesday (9/9), which will include Appendix A in B1, "Mathematical Review" and what we learned so far.