**PHYSICS 2021 - 22 August 26, 2021**

**Today’s Agenda (Day 7)**

1. HOUSEKEEPING ITEMS

🡪 Request for: Pringles Chips (or something of similar shape)

1. HOMEWORK CHECK:

🡪 APA Review

🡪 Practice Problems **#1a – f, #2a – d, #3a – d; #4a – d, #5a – d, #6 – 10; #11 - 13, #14 - 19**

1. CLASS ACTIVITY

🡪 CONT’D: Math Review – Day 4

1. ~~Scientific Notation~~
2. **Order of Operations and Equations**
3. **Dimensional Analysis/Unit Conversions**
4. **Graphs of Relations**
5. Geometry and Trigonometry

🡪 PRACTICE: See Isolating Variables (p. 3) and Scientific Notation (p. 4)

\*\***Show work** when solving these questions. Take a picture of your written workings, pay attention to the steps in the solution process. SUBMIT by class end to sbeland@luschool.com, subject line: Math Review Day #4

HOMEWORK:

* READ: Chapter 1 – A Physics Toolkit
* COMPLETE: Chapter 1 Vocabulary (short form) and Notes
* Math Review Practice Problems – Dimensional Analysis, Isolating Variables, Scientific Notation [odds if your last name starts with M-Z; evens if your last name starts with A-L]

Chapter 1 Vocabulary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Physics | Scientific methods | Hypothesis | Model | Scientific theory |
| Scientific law | Dimensional analysis | Significant figures | Measurement | Precision |
| Accuracy | Independent variable | Dependent variable | Line of best fit | Linear relationship |
| Quadratic relationship | Inverse relationship |  |  |  |

Chapter 2 Vocabulary

|  |  |  |  |
| --- | --- | --- | --- |
| Particle model | Distance | Time interval | Instantaneous position |
| Coordinate system | Magnitude | Displacement | Average velocity |
| Origin | Vector | Resultant | Average speed |
| Position | Scalar | Position-time graph | Instantaneous velocity |

REMINDERS:

* Chapter 1 Vocabulary – Aug. 27
* Chapter 1 Notes – Aug. 30
* TEST: Chapter 1 (includes math review) 🡪 **Tuesday, September 7**
* QUIZ: Ch 1 & 2 Vocabulary **🡪 Thursday, September 9**

**PHYSICS 2021 - 22 MATH REVIEW**

**Dimensional Analysis Practice**

|  |
| --- |
| Conversions Factors  |

|  |  |  |  |
| --- | --- | --- | --- |
| 1 hr = 60 min | 1 min = 60 sec | 1 ton = 2000 lbs | 7 days = 1 week |
| 24 hrs = 1 day | 1 kg = 2.2 lbs | 1 gal = 3.79 L | 264.2 gal = 1 cubic meter |
| 1 mi = 5,280 ft | 1 kg = 1000 g | 1 lb = 16 oz | 20 drops = 1 mL |
| 365 days = 1 yr | 52 weeks = 1 yr | 2.54 cm = 1 in | 1 L = 1000 mL |
| 0.621 mi = 1.00 km | 1 yd = 36 inches | 1 cc is 1 cm3 | 1 mL = 1 cm3 |

Solve the questions below. **!SHOW ALL WORK!**

1. 8.41 g/mL to Kg/L
2. 1.42 g/cm2 to mg/mm2
3. 3.8 Km/sec to miles/year
4. 7.68 cal/sec to Kcal/min
5. 25 m/s to miles/hr
6. How many miles will a person run during a 10-kilometer race?
7. A family pool holds 10,000 gallons of water. How many cubic meters is this?
8. Traveling at 65 miles/hour, how many feet can you travel in 22 minutes? (1 mile = 5280 feet)
9. The average American student is in class 330 minutes/day.  How many hours/day is this?
10. Winnie is refilling the pool. How many gallons of water will it take if the pool is 50m by 25m by

1.5m? (1 gallon = 3.786 L)

**PHYSICS 2021 - 22 MATH REVIEW**

# Isolating Variables

Isolate each variable in each equation using inverse order of operations. If there are 3 different variables, then you should end up with 3 different equations.

1. **v = x / t**

x =

t =

1. **A = abc a**

 **ab + bc + ac**

a =

b =

c =

1. **D = H (1 – m/M)**

H =

m =

M =

1. **A = ½ h (a + b)**

h =

a =

b =

1. **K = ½mv2**

m =

v =

1. **S = 3D + Q – 10O**

D =

Q =

O =

1. **T = 2Π** **√(l/g)**

l =

g =

1. **v2 = v02 + 2a (x –x0)**

v =

v0 =

a =

x =

x0 =

1. **R = ¼ (S + T) / (U)2**

S =

T =

U =

1. **B = \_\_\_L\_\_\_**

 **4πd2**

L =

D =

**PHYSICS 2021 - 22 MATH REVIEW**

# SCIENTIFIC NOTATION

Provide the scientific notation or the value:

1.

77=

2.

120,000=

3.

86,000=

4.

3,800=

5.

7,500,000=

6.

880=

7.

190,000=

8.

5,400=

9.

8,600=

10.

474,000=

11.

=

×

8.9

10

3

12.

=

1.49

×

10

5

13.

=

×

10

4.6

1

14.

=

×

10

3.2

4

15.

=

10

4.536

×

6

16.

=

1.9

×

10

1

17.

=

9.401

×

10

6

18.

=

7.4

×

10

4

19.

=

×

10

5.8

3

20.

=

×

10

5.4

4