**Physics Summer Assignment**

1. **Conversions**

 1 Mega (M) = 1,000,000 or 10 6

 1 kilo (k) = 1000 or 10 3

 1 deci (d) = 0.1 or 10 -1

 1 centi (c) = 0.01 or 10 -2

 1 milli (m) = 0.001 or 10 -3

 1 micro(m ) = 0.000001 or 10 -6

Example1: Convert 15 g to kilograms. 15 g X 1 kg = 0.015 kg

 1000 g

Example2: Convert 3.76 MPa to kPa. 3.76 MPa X 1,000,000 Pa X 1 kPa = 3,760 kPa

 1 MPa 1000 Pa

Watch these videos for more details on how to do metric conversions:

<https://www.youtube.com/watch?v=ZUOtaTRLCDs>

<https://www.youtube.com/watch?v=jqmIbcId3B0>

a) Convert 34.5 mL to L.

b) Convert 34.5 mL to ML.

c) Convert 12 m to mm.

d) Convert 12 mm to cm.

e) Convert 12 Mm to km.

2. **Algebraic Manipulation**

Example 3 : Solve the following Equation for R. V = I /R

 R V = I R R V = I R V = I R = I

 R V V V

Example 4 : Solve the following Equation for x. y = 5x + 7

 y - 7 = 5x + 7 - 7 y - 7 = 5x y - 7 = 5x y - 7 = x

 5 5 5 5

Watch this video for more details on how to manipulate equations:

[https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:modeling/x2ec2f6f830c9fb89:manipulating-formulas/v/example-of-solving-for-a-variable](https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89%3Amodeling/x2ec2f6f830c9fb89%3Amanipulating-formulas/v/example-of-solving-for-a-variable)

a) Solve the following Equation for d. v = d / t

b) Solve the following Equation for t. v = d / t

c) Solve the following Equation for t. v = 8 + 4t

d) Solve the following Equation for t. v = (8 + 4)t

e) Solve the following Equation for t. d 2 = 8 - 4t

3. **Graphing Data**

Watch this video for details on how to graph data in science(Pay close attention to the example at the end of the video):

<https://www.youtube.com/watch?v=9BkbYeTC6Mo>

Additional video on graphing by hand using scatter plots:

<https://www.youtube.com/watch?v=GUYRMdcEs00>

Graphing Data with a spreadsheet:

<https://www.youtube.com/watch?v=yvYvHU83_6Y>

Printable Graph Paper:

<https://www.waterproofpaper.com/graph-paper/grid-paper.shtml>

For each set of Data Graph Time on the x-axis, Distance on the y-axis. If you watch the video, this should be a scatter plot. Draw a best fit curve or line through the Data. For 3 a), find the equation of the line.

a) Distance (m) Time (s)

 0.0 0.0

 10.2 5.0

 21.0 10.0

 28.5 15.0

 40.0 20.0

 51.1 25.0

 60.3 30.0

b) Distance (m) Time (s)

 10.0 0.0

 22.6 5.0

 61.0 10.0

 122 15.0

 200 . 20.0

 322 25.0

 465 30.0