**Physics 30 – Lesson 4**

**Graphing for Fun and Profit**

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**Practice problems**

1)

|  |  |
| --- | --- |
| FN (N) | Ff (N) |
| **2.0****4.0****6.0****8.0****10.0****12.0** | **0.72****1.3****2.1****2.9****3.4****4.2** |

Ff (N)

Ff vs. FN

4

3

2

1

0

0 2 4 6 8 10 12

 FN (N)

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FN = 6.0 N

Ff = 2.0 N

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2)

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| --- | --- | --- |
| r(m) |  |  |
| **0.20****0.40****0.60****0.80****1.0** | **25****6.25****2.8****1.6****1.0** | **45****11****5.0****2.8****1.8** |



vs. 1/r

40

30

20

10

0

0 5 10 15 20 25 30

1/r2 (1/m2)

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**Assignment**

1)



|  |  |  |
| --- | --- | --- |
| Force (N) | Speed (m/s) | v2 (m2/s2) |
| **0.60****2.40****5.40****9.60****15.0** | **1.0****2.0****3.0****4.0****5.0** | **1.0**checkmark**4.0****9.0****16****25** |

Fc (N)

Force vs. speed2

20

15

10

5

0

0 5 10 15 20 25 30 35

v2 (m2/s2)

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v2 = 15.0 m2/s2

Fc = 9.0 N















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2)

Note inverse relation





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| --- | --- | --- |
| f (Hz) |  (m) | 1/ (1/m) |
| **5****10****15****20****25****30** | **2.4****1.2****0.8****0.6****0.5****0.4** | **0.42****0.83****1.25****1.67****2.0****2.5** |

f (Hz)

Frequency vs. 1/

40

30

20

10

0

0 .5 1.0 1.5 2.0 2.5

1/ (1/m)



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 = 1.17 1/m

f = 14.1 1/s











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3)





Force ()

Force vs. Mass

4

3

2

1

0

0 5 10 15 20 25

Mass (kg)



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F = 2.0 x 10-6 N

m = 15 kg









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4)





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| --- | --- | --- |
| r(m)checkmark |  |  |
| **0.02****0.03****0.04****0.05****0.06****0.07****0.08****0.09****0.10****0.11****0.12** | **2500****1111****625****400****278****204****145****123****100****83****69** | **66.7**checkmark**29.6****16.7****10.7****7.41****5.44****4.17****3.29****2.67****2.20****1.85** |

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Force ()

Force vs. 1/r

80

60

40

20

0

0 1000 2000 3000

1/r(1/m)













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