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| **PH 201 Pre-Lab 06** | **Friction** | **Name** |  |

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|  | In this week’s lab we are going to examine both static and kinetic friction. We shall be using a block with different surfaces on it which will provide different coefficients of friction between the block and the horizontal plane. The setup will look something like that pictured at the left. |

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| 1. Draw below a free body diagram for each mass. Be sure to include all the forces acting on the mass including friction. Note: you may print this pre-lab out and use a pencil or pen to draw on the paper the two free body diagrams. (Everything else should have been typed in before you print this out.) |
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| 2. Assume the blocks are at rest. Write down Newton’s second law for all three components that matter. |
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| 3. Using these three equations in question 2, solve for the static friction force. |
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| 4. What is the maximum static friction force? |
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| 5. If you plotted the maximum possible static friction force (y-axis) vs. the normal force (x-axis), what would the slope of that line equal? |
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| 6. Now assume the blocks are moving, so we have kinetic friction, what is the kinetic friction force? |
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| 7. If you plotted kinetic friction force vs. the normal force, what would the slope of that line be? |
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