Physics 100 (Stapleton) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Car Calculations Practice

Formulas: $v=\frac{d}{t}$ $W=Fd$ $KE=\frac{1}{2}mv^{2}$

$KE=output energy$ $W=Input Energy$ $\%Efficiency= \frac{Output Energy}{Input Energy}×100\%$

1. Use the data in the table and graph below to complete the table on the right.

|  |  |
| --- | --- |
| Car Mass (kg) | 0.12 |
| Video Frame Rate (frames/sec) | 240 |
| Floor Tile Width (m) | 0.305 |
| Fewest Video Frames to Cross a Floor Tile (#) | 28 |

|  |  |
| --- | --- |
| Average Wheel Force  |  |
| Total Work Distance  |  |
| Approximate Total Work Required to Wind Car |  |
|  |  |
| Car Maximum Velocity -- From Video (m/s) |  |
| Car Maximum Kinetic Energy  |  |
| Car Efficiency  |  |



1. Use the data in the table and graph below to complete the table on the right.

|  |  |
| --- | --- |
| Car Mass (kg) | 0.185 |
| Video Frame Rate (frames/sec) | 240 |
| Floor Tile Width (m) | 0.305 |
| Fewest Video Frames to Cross a Floor Tile (#) | 26 |

|  |  |
| --- | --- |
| Average Wheel Force  |  |
| Total Work Distance  |  |
| Approximate Total Work Required to Wind Car |  |
|  |  |
| Car Maximum Velocity -- From Video (m/s) |  |
| Car Maximum Kinetic Energy  |  |
| Car Efficiency  |  |

