1.研究弦线的线密度、弦长、张力、基频与波速的初步关系

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 弦的张力 *T*(N) | 弦的密度*ρ*(kg/m) | 弦长*L*(cm) | 基频*f*(Hz) | 波速*v=λf* (m/s2) | 波速 (m/s2) |
|  |  |  |  |  |  |

1. 确定波的频率*f*与弦线张力*T*的函数关系

弦线密度*ρ=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*kg/m

|  |  |
| --- | --- |
| 频率*f*(Hz) | 张力*T*(N) |
| 57.3 | 10 |
| 77.9 | 20 |
| 93.8 | 30 |
| 107.8 | 40 |
| 119.7 | 50 |
| 116.2 | 10 |
| 157.0 | 20 |
| 188.6 | 30 |
| 216.0 | 40 |
| 239.6 | 50 |

弦长L=40cm

|  |  |
| --- | --- |
| 频率*f*(Hz) | 张力*T*(N) |
| 175.2 | 10 |
| 235.7 | 20 |
| 283.5 | 30 |
| 323.7 | 40 |
| 360.9 | 50 |
| 232.9 | 10 |
| 314.7 | 20 |
| 379.1 | 30 |
| 433.1 | 40 |
| 482.0 | 50 |

1. 确定振动频率*f*与弦线频率*ρ*之间的关系

弦长*L*=\_\_\_\_50\_\_\_\_cm，驻波个数*N*=\_\_\_1\_\_\_，弦线张力*T*=\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| *f*(Hz) | 张力*T*(N) |
| 45.8 | 10 |
| 62.0 | 20 |
| 74.8 | 30 |
| 85.9 | 40 |
| 95.7 | 50 |
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