**Physics 11 Formulae**

**Motion**

**Forces**

**Mechanical and Thermal Energy**

*efficiency*

**Electric Circuits**

**Waves**

**Major constants**

*gravitational constant*

*gravitational acceleration*

*mass of Earth*

*solar mass*

*lunar mass*

*coefficients of friction of common material combinations*

|  |  |  |
| --- | --- | --- |
| material combination | coefficient of static friction | coefficient of kinetic friction |
| ice – ice | 0.1 | 0.03 |
| steel – steel | 0.78 | 0.42 |
| steel – steel (lubricated) | 0.15 | 0.08 |
| glass – glass | 0.94 | 0.4 |
| aluminum – steel | 0.61 | 0.47 |
| copper – steel | 0.53 | 0.36 |
| wood – wood | 0.25 – 0.5 | 0.2 |
| synovial joints in humans | 0.01 | 0.003 |
| brass – steel | 0.35 – 0.51 | 0.44 |
| brass – steel (lubricated) | 0.19 |  |
| copper – glass | 0.68 |  |
| wood – metal | 0.2 – 0.6 |  |

**Right angle trigonometry**

**Pythagorean theorem:** , where is the hypotenuse.