

Ex 24.1

Infering force laws

1) If $r_A = 4r_B$

but $T_A = T_B$

then $F \propto r^x$, $x = ?$

Recall $F \propto \frac{v^2}{r} \propto \frac{r}{T^2}$

So if $T \neq F(T)$ then $\boxed{F \propto r}$

A spring exerts a force which is proportional to r .

2) If $r_A = 4r_B$

and $T_A = 8T_B$

thus $T \propto r^{3/2}$

so $F \propto \frac{r}{T^2} \propto \frac{1}{r^2}$ and $\boxed{F \propto \frac{1}{r^2}}$

Gravity exerts an inverse square force law.