

get your clicker

Review for Test tomorrow

Warm-up question: (enter your answer w/ clicker)

$$\frac{\cancel{4} + 10}{\cancel{4}} = 10$$

$$\frac{T - ma}{m} = \cancel{T - a}$$

$$\frac{T}{m} - \frac{\cancel{ma}}{m} = \frac{T}{m} - a$$

CHAPTER 6

TOOLS { FBD
 $\Sigma F = ma$ (x & y)

NEW FORCES

FRICTION

STATIC

$$f_s \leq \mu_s N$$

$$f_{s_{\max}} = \mu_s N$$

KINETIC

$$f_k = \mu_k N$$

SPRINGS

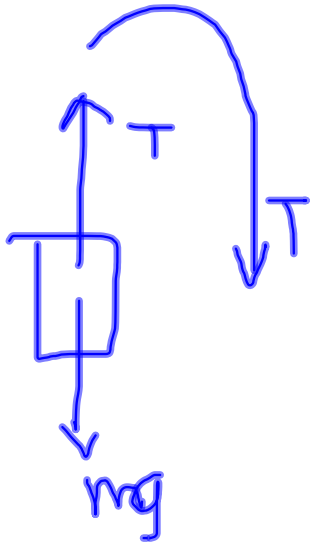
$$F_s = kx$$

		UNITS
F_s	FORCE	N
k	SPRING CONSTANT	N/m
x	STRETCH DISTANCE	m

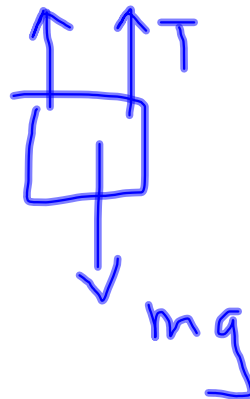
WORKS
BOTH
WAYS:
STRETCH
&
COMPRESS

STRINGS

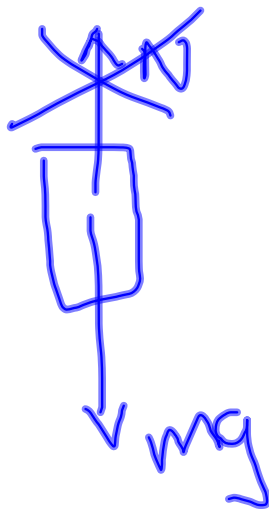
- CAN ONLY EXERT A FORCE ALONG THEIR OWN DIRECTION
- FORCE USUALLY CALLED 'TENSION'
- PULLEYS ONLY CHANGE DIRECTION OF TENSION (NOT MAGNITUDE)
- THINGS CONNECTED BY STRINGS HAVE THE SAME ACCELERATION.
(STRINGS DON'T STRETCH)



$$\begin{aligned}\sum F_y &= ma_y \\ T - mg &= 0 \\ T &= mg\end{aligned}$$



$$\begin{aligned}\sum F_y &= ma_y \\ T + T - mg &= 0 \\ 2T &= mg \\ T &= \frac{mg}{2}\end{aligned}$$



$$\Sigma F = ma$$

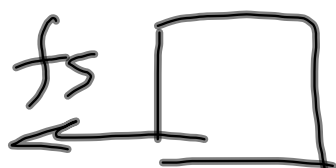
$$\cancel{mg} = \cancel{ma_c}$$

$$g = a_c$$

$$g = \frac{v^2}{r}$$

$$v^2 = rg$$

$$v = \sqrt{rg}$$



$$\sum F = ma$$

$$f_s = ma$$

$$\mu N = ma$$

$$\mu mg = ma$$

$$a = \mu g = (0.4)(9.81) \approx 3.92 \text{ m/s}^2$$

$$F = kx$$
$$x = \frac{F}{k} = \frac{mg}{k} = \frac{(0.04)(9.81)}{20}$$

$$\textcircled{N} \quad mg = \frac{mv^2}{r}$$