Lab 2 - Hooke's Law + SHM

Hooke's Law

$$F = -kx \leftarrow \text{displacement}$$

$\uparrow$

Force of the spring

Mass (g)	Ruler Pos (cm)	disp (cm)
10.01	21.7	1.0
19.99	20.7	2.0
49.53	17.5	5.2
99.98	12.4	10.3
kg		±0.05

22.7

$$0.01001 \text{ kg} (9.806 \text{ m/s}^2) = 0.098 N$$
$$0.01999 \text{ kg} (9.806 \text{ m/s}^2) = 0.196 N$$
$$0.04953 \text{ kg} (9.806 \text{ m/s}^2) = 0.486 N$$
$$0.09998 \text{ kg} (9.806 \text{ m/s}^2) = 0.980 N$$

± 0.0005 N

± 0.0005

$$0.098 = k(0.010) \quad k = 9.80$$
$$0.196 = k(0.020) \quad k = 9.80$$
$$0.486 = k(0.052) \quad k = 9.35$$
$$0.980 = k(0.103) \quad k = 9.51$$

$$AVG = 9.62$$

9.302   -115 g

9.254   -125 g

9.114   -95 g

9.493   -105 g

9.194   -110 g