

CP - sept 26

Ball time = .7s

3m

$V_0$	$a$
$t$	
$d$	

$$d = V_0 t + \frac{1}{2} a t^2$$

$$2d = \cancel{\frac{1}{2}} a t^2$$

$$2d = a t^2$$

$$a = \frac{2d}{t^2} = \frac{2(-3m)}{(.7s)^2}$$

$$= \frac{-6m}{.49s^2} = \boxed{-12.24 \frac{m}{s^2}}$$

$d = -3m$   
 $t = .7s$

Beam Bag

$a = \frac{2d}{t^2}$  if  $V_0 = 0$

$d = -4.3m$

$$a = \frac{2(-4.3m)}{(.95s)^2} =$$

$2 \times \pm 4.3$  enter  $-8.6$

$\div .95$  enter

$\div .95$  enter

$\boxed{-9.53 \frac{m}{s^2}}$

Sponge  
Ball

$$a = \frac{2d}{t^2} \quad \text{if } v_0 = 0$$

$$\frac{2(-4.3)}{(1.1\text{ s})^2}$$

$$-8.6 \div 1.1 \text{ enter} \\ \div 1.1 \text{ enter} \left( -7.11 \frac{\text{m}}{\text{s}^2} \right)$$

$$d = -4.3\text{ m}$$

$$t = 1.05\text{ s}$$

$$a = -9.8 \frac{\text{m}}{\text{s}^2}$$

$$v_0 = 0$$

$$\frac{2d}{t^2} =$$

$$v_f$$

$$v_f^2 = v_0^2 + 2ad$$

$$= 2 \left( \frac{-7.8\text{ m}}{\text{s}^2} \right) (-4.3\text{ m})$$

$$v_f^2 = 67 \frac{\text{m}^2}{\text{s}^2}$$

$$= \sqrt{67 \frac{\text{m}^2}{\text{s}^2}}$$

$$= 8.19 \frac{\text{m}}{\text{s}}$$

$$28 \frac{\text{km}}{\text{hr}}$$