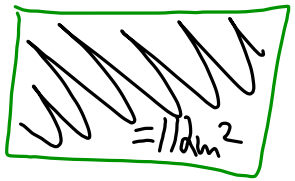
p.316 3,9 apps. #4, 8, 9

#4) 

$A = m^2$

w = width m.

$A = lw = 112m^2$

$A = -2w^2 + 36w = 112$

$112 = -2w^2 + 36w$

$0 = -2w^2 + 36w - 112$

$0 = -2(w^2 - 18w + 56)$

-14

-4

$0 = -2(w-14)(w-4)$

$w - 14 = 0$

$w = 14$ OR $w = 4$

if $w = 14$

$A = lw$

$= 14l = 112$

$14l = 112$

$l = \frac{112}{14}$

then $l = 8$

$\therefore 14 \times 8 = 112 m^2$

d) $p = 14 + 14 + 8 + 8$

$p = 44m$

OR

if $w = 4$

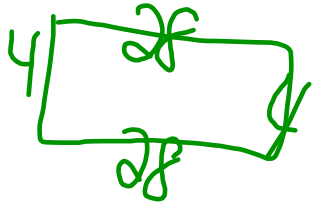
$A = l(4) = 112$

$\frac{4l}{4} = \frac{112}{4}$

then $l = 28$

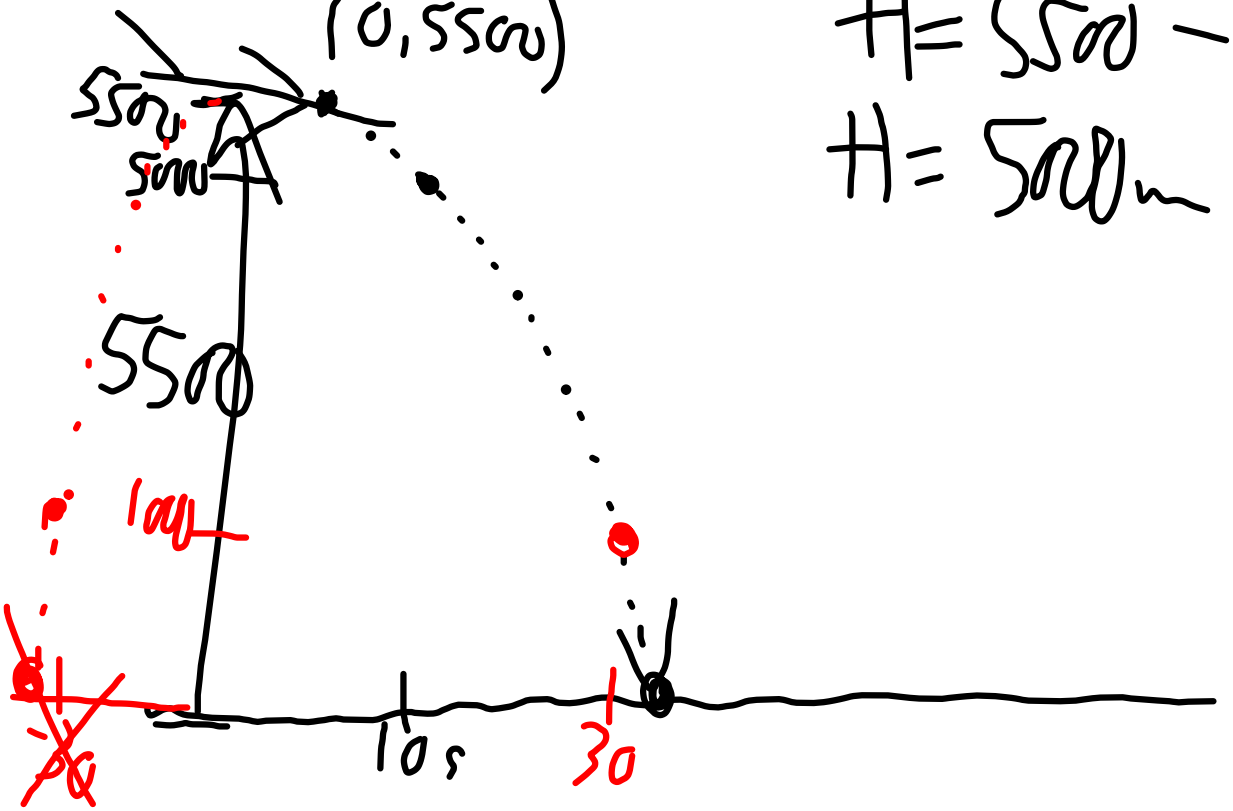
$\therefore 4 \times 28 = 112 m^2$

$p = 64m$



8a) $H = 5500 - 5t^2$

diagram



a) $t = 10$

$H = 5500 - 5(100)$

$H = 5000\text{ m}$

b) $H = 1000m$

$1000 = 5500 - 5t^2$ (−1000 on both sides)

Roots

$0 = 4500 - 5t^2$

$\frac{-4500}{-5} = \frac{-5t^2}{-5}$

$\sqrt{t^2} = \sqrt{900}$

$t = \sqrt{900} = \pm 30$

Since positive time is in context with this model, therfore, the jumper reaches 1000m at 30seconds.

c) $H = 0_m$.

$0 = 550 - 5t^2$

$\frac{-550}{-5} = \frac{-5t^2}{-5}$

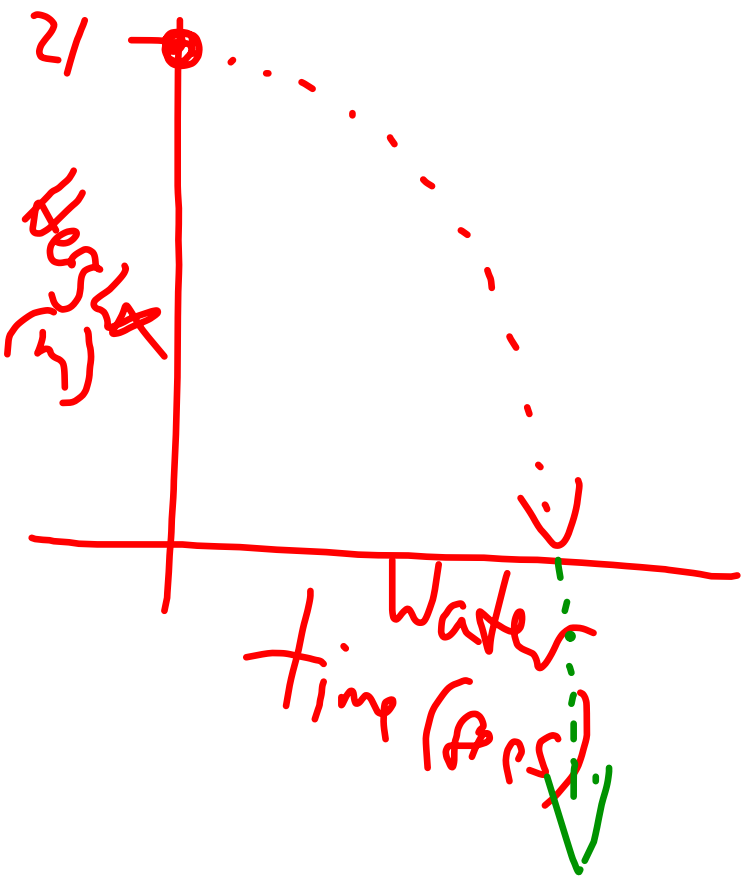
$t^2 = 110$ $\quad t = \sqrt{110}$

$t = 33.16 \text{ sec.}$

$\therefore 33.16 - 30 = \underline{3.16 \text{ sec.}}$

remaining to open their chute before its pancake-time!

#9) $h = -4.9t^2 + 21$



a) $h = \frac{21}{2}$ solve for vert $- 10.5$

b) $h = 0$ solve for x int zeros

a) 1.46 secs.

b) 2.07 secs.