Story Problem Packet

Ex1: (A) $t \approx 1.4$ sec (B) $h(t) = 36$ ft

(C) $t = 5$ sec (D) $t \approx 1.08$ sec

(E) $h_0 = 449.44$ ft (F) $t \approx 1.07$ sec

Ex2: (A) $w = 4$
$l = 10$

(B) sides: 11 & 19

(C) consecutive evens are either -26 & -24 or 24 & 26

(D) Max Area = 2,450 ft^2

Ex3: (A) (1) $x = -.39$ & 3.72 (2) $x = -7.03$ & 2.15 (3) -3.01 & $-.17$

(B) 30ft

(C) max height = 14.89 ft, width = 18.95 ft

(D) max height = 127.37 ft, ball strikes 77.73 ft from child

Ex4: (A) 1. $b^2-4ac = -55$. Since discriminant is negative there are no real solutions. Thus, the stick will NOT reach the branch

2. $b^2-4ac = 128$. Since the discriminant is positive there are 2 real solutions. The stick will be at the height of the branch on the way up & again on the way down as it goes over the branch

Ex 4 (cont)

(A) 3. If the discriminant equals zero then the stick w/ the rope attached would reach the branch height but would not be able to get <u>OVER</u> the branch for you to hang your food pack.

(B) 1. $h(t) = -16t^2 + 40t + 0$

2. reach a height of 16 ft?

→ $b^2 - 4ac = 576$, since discriminant is positive the ball will reach 16 ft 2 different times: once on the way up & once on the way down

reach a height of 25 ft?

→ $b^2 - 4ac = 0$, since discriminant is zero there is on real solution so there is one time the ball is @ a height of 25 ft → at its maximum.

3. over 25 ft? <u>No</u>, since we saw above that 25 ft is the maximum height then the ball cannot reach above 25 ft.

Additional Practice

1. $t \approx 1.41$ sec
2. $t = 1.25$ se
3. $t = 3.75$ sec
4. $t \approx 2.72$ sec
5. $t \approx 1.08$ sec
6. $t \approx 1.07$ sec
7. $t = 3.75$ sec
8. [A] Yes, after 3.77 sec
   [B] No, imaginary solutions
9. $t = .75$ sec
10. [A] max height = 4 ft high
    horiz. distance = 1 ft from original position
    [B] zeros @ -1 & 3: from exit from water to point of reentry into water the dolphin has traveled 4 ft. The zeros represent the dolphin @ water level. There are 2 places that this occurs.
11. 74.23 ft
12. .343 inches