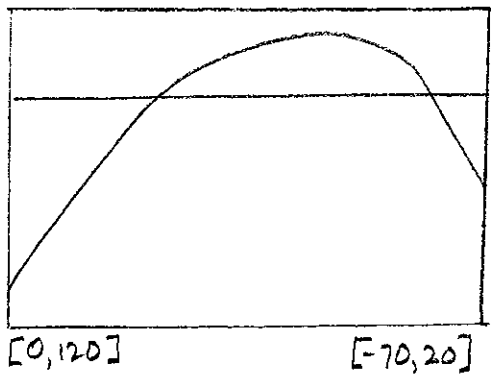
Pre-Calculus Math 11

P. 215 part 2 #5-11

5. $h(d) = -0.02d^2 + 2.6d - 66.5$

h = height

d = horizontal distance from Kirkington's goal line



$y = -0.02d^2 + 2.6d - 66.5$

zeros: 35, 95

distance the ball travelled is the difference between the zeros:

95 - 35 = 60 yds

6. two numbers: sum of 9, product of 20

1st number = x

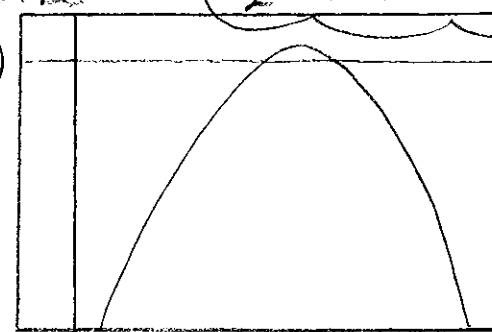
2nd number = 9 - x

a) $20 = x(9-x)$

$20 = 9x - x^2$

$0 = -x^2 + 9x - 20$

b) $y = -x^2 + 9x - 20$



zeros: 4, 5

if x = 4 then 9 - x = 9 - 4 = 5

if x = 5 then 9 - x = 9 - 5 = 4 → the two numbers are 4 and 5

7. two consecutive even numbers with product 168

1st number = x

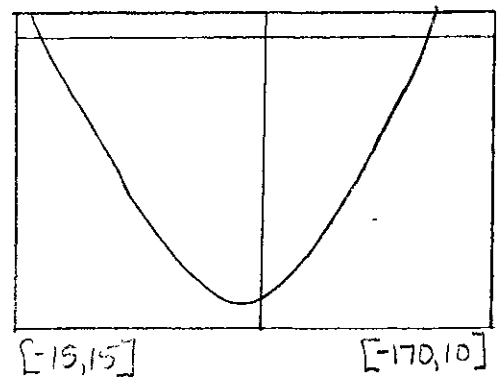
2nd number = x + 2

a) $168 = x(x+2)$

$168 = x^2 + 2x$

$0 = x^2 + 2x - 168$

b) $y = x^2 + 2x - 168$



zeros: -14, 12

if x = -14 then -14 + 2 = -12 → the two numbers are -14 and -12

if x = 12 then 12 + 2 = 14 → the two numbers are 12 and 14

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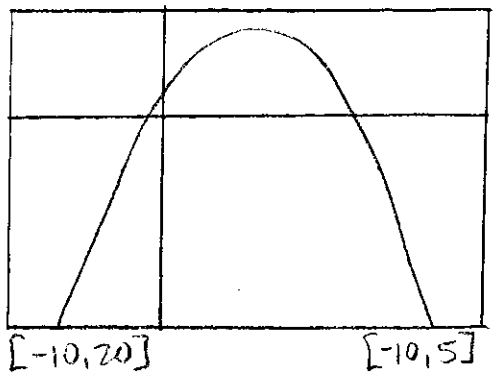
8. a) $-0.09x^2+x+1.2=0$ → where the water hits the ground

b) 

$y=-0.09x^2+x+1.2$

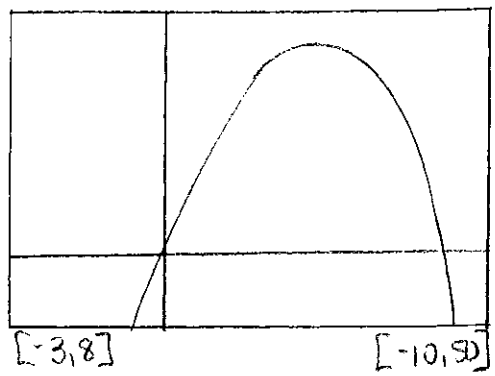
zeros: -1.1, 12.2

the negative number is meaningless when measuring distance

12.2 m

c) assume that the water pressure is consistent

9. a) $0=-4.9(t-3)^2+47$ represents when the fireworks hit the water

b) 

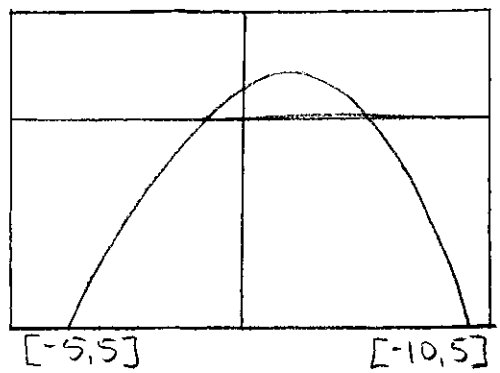
$y=-4.9(t-3)^2+47$

zeros: -0.1, 6.1

the negative number is meaningless with time so

6.1 sec

10. a) $0=-0.75d^2+0.9d+1.5$

b) 

$y=-0.75d^2+0.9d+1.5$

zeros: the negative zero is meaningless for distance

→ 2.1 m

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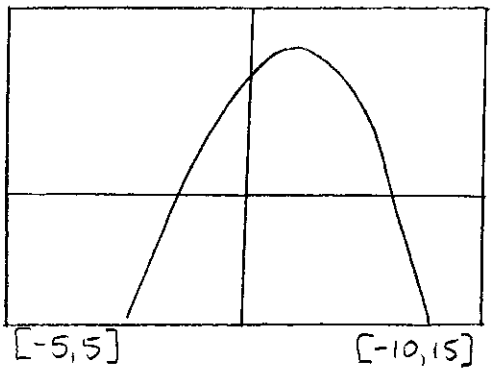
11. a) She enters the water: $0 = -2d^2 + 3d + 10$

b)



$y = -2d^2 + 3d + 10$

negative zero is meaningless for distance

zero: 3.1