

1.1 Modeling & Equations Solving

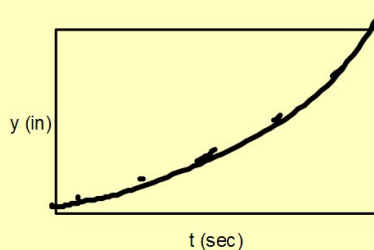
**Zero Factor Property:** A product of real numbers is zero iff at least one of the factors in the product is zero

#23. A ball is rolled down an inclined plane.  $t$  is the elapsed time in seconds and  $y$  is the distance traveled in inches.

t (sec)	0	1	2	3	4	5
y (in)	0	1.2	4.8	10.2	19.2	30

5.24 6  
33 43.44

$$y = 1.243x^2 + .231x + .086$$



a. Using a quadratic regression, find an algebraic model that fits the data.

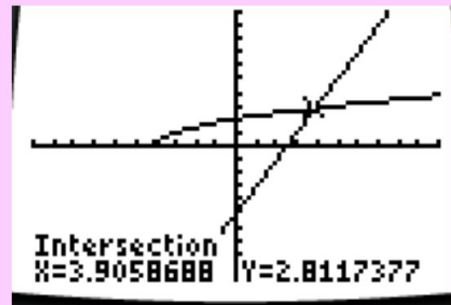
b. When will it reach 33in? 5.24sec

c. At  $t = 6$  sec what is  $y = ?$  43.44

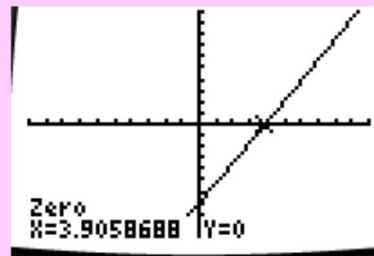
Homework: 1.1 pg 81: l,n,o,p(match with graph), 20,24(TI),31,35,39,41,47,51(TI)

$$39. \underbrace{2x-5}_{y_1} = \underbrace{\sqrt{x+4}}_{y_2}$$

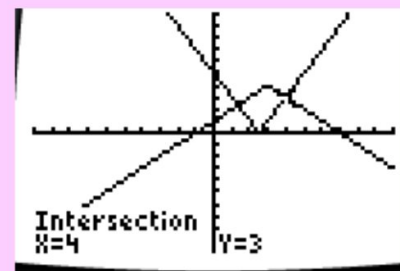
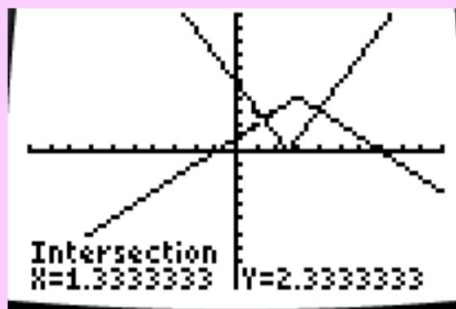
$$x \approx 3.906$$



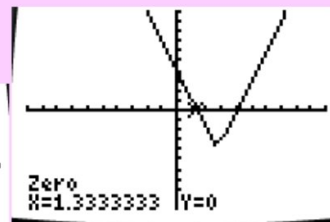
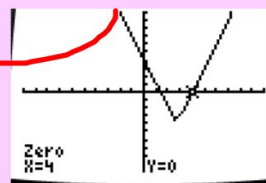
$$\underbrace{2x-5-\sqrt{x+4}}_{y_1} = 0$$



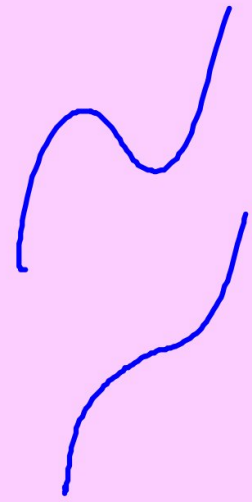
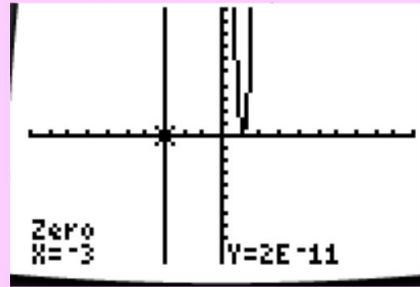
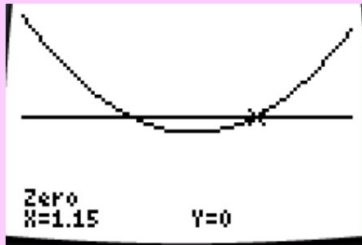
$$41. \underbrace{|2x-5|}_{y_5} = \underbrace{4-|x-3|}_{y_6}$$



$$\underbrace{|2x-5|-4+|x-3|}_{y_1} = 0$$



51. a.)  $y = 10x^3 + 7.5x^2 - 54.85x + 37.95$   
 $0 =$



$$\frac{666.1 - 452.3}{9 - 0} =$$

