Pick Up the Warm Up

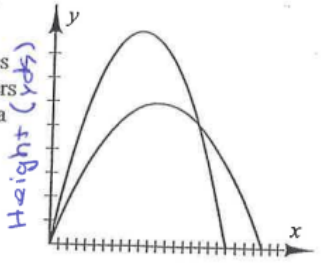
HW TALLY →

Warm Up 4.1.4

Below is the soccer penalty kick problem from a recent class. In that class you created a system of equations from the information.

Consider the parabolic paths of two soccer penalty kicks, represented in the graph at right. One kick covers a horizontal distance of 20 yards and reaches a maximum height of 9 yards. The other kick covers a horizontal distance of 24 yards, but only reaches a maximum height of 6 yards.

Find an equation that describes the path of each kick.

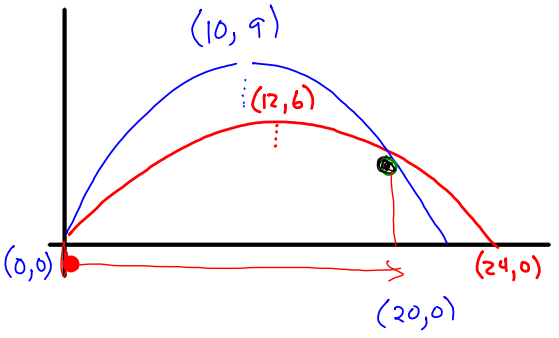


Distance from kick (yards)

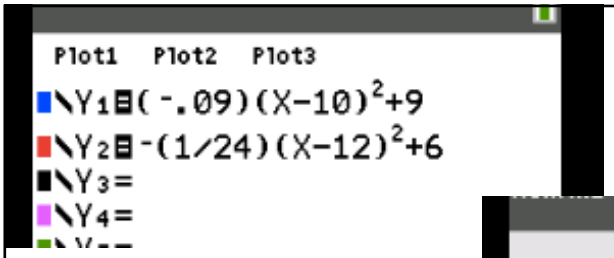
We came up with:

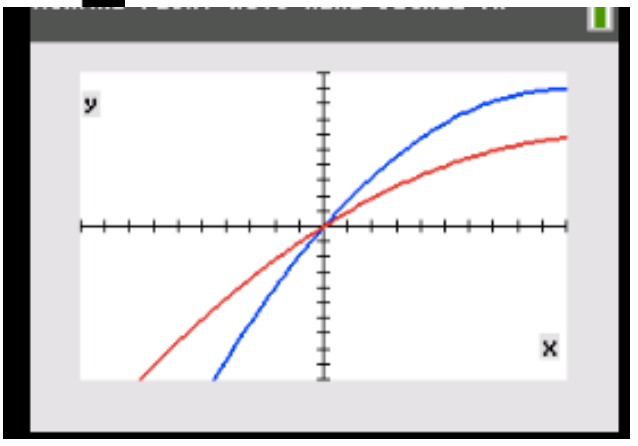
$y = -\frac{9}{100}(x-10)^2 + 9$ $y = -\frac{1}{24}(x-12)^2 + 6$

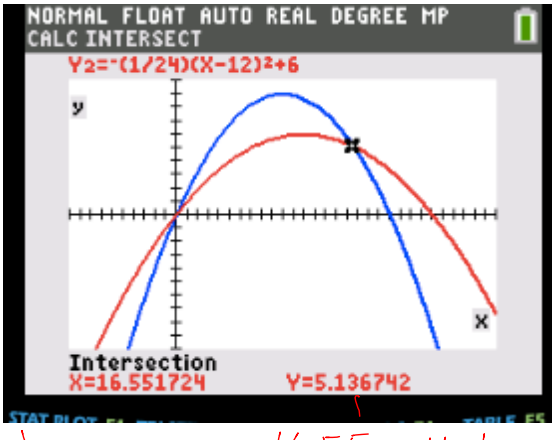
a) Find the distance from the kicking spot where the heights are the same, (You can use graphical methods)



Graphical solution is adequate (use GDC)







a) 16.552 16.55 16.6

b) Determine the height at this distance.

Questions on HW

40

40 C $y = 2(x+3)^2 - 5$ $y = 14x + 17$

$2(x+3)^2 - 5 = 14x + 17$

$2(x+3)(x+3) - 5 = 14x + 17$

$(2x+6)(x+3) = 14x + 22$

$2x^2 + 6x + 6x + 18 = 14x + 22$

$2x^2 - 2x - 4 = 0$

(d) $y = 3(x-2)^2 + 3$ $y = 6x - 12$

41

(a) $3(y+1)^2 - 5 = 43$

(b) $\sqrt{1-4x} = 10$

(c) $\frac{6y-1}{y} - 3 = 2$

$\frac{6y-1}{y} = 5$

(d) $\sqrt[3]{1-2x} = 3$

42 is a checkpoint ✓
-meaning you should be close to mastery

(a) $t(n) = 1, 4, 7, 10$

Explicit $t(n) =$ or $t(n) =$

Recursive $\begin{cases} t(1) = \\ t(n+1) = \end{cases}$

(b) $3, \frac{3}{2}, \frac{3}{4}, \frac{3}{8}$ multiplier •

Explicit $t(n) =$

Recursive $\begin{cases} t(1) = 3 \\ t(n+1) = \end{cases}$

(c) Arithmetic

n	t(n)
0	
1	17
2	
3	3
4	

Explicit: $t(n)$

Recursive: $\begin{cases} t(1) = \\ t(n+1) = \end{cases}$

(d) Geometric

n	t(n)
0	
1	
2	7.2
3	8.64
4	

$t(n) =$

$\begin{cases} t(1) = \\ t(n) = \end{cases}$

(e) If arithmetic sequence → $t(7) = 1056$ ✓

$t(12) = 116$ ✓

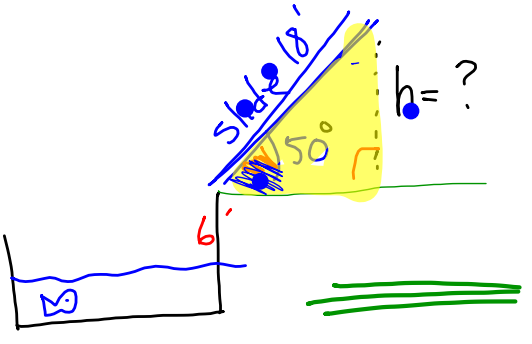
$t(4) = ?$

7	1056
8	
9	
10	
11	
12	116

43

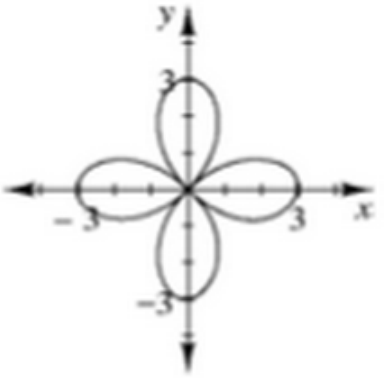
Soh cah Toa

$\sin(A) = \frac{OPP}{hyp}$



45

a.



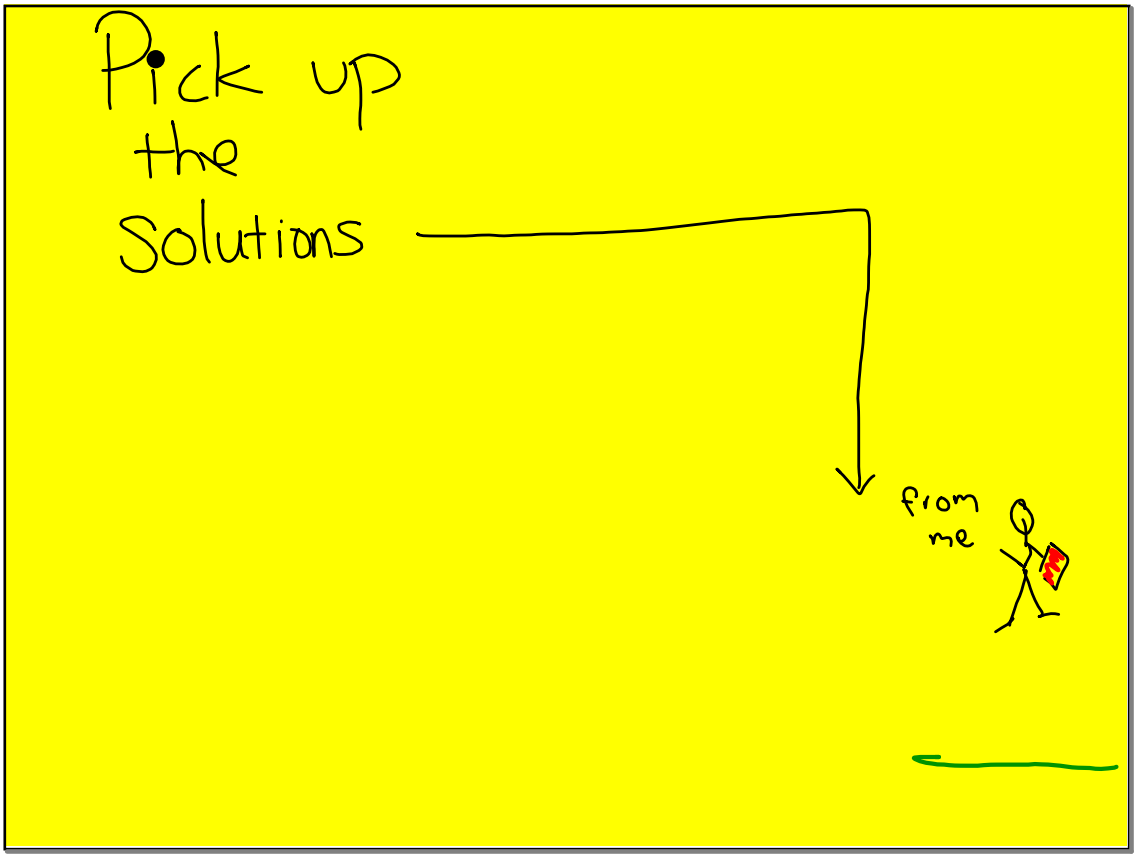
b.

46 Solve system $2^{x+y} = 16$

$2^{2x+y} = \frac{1}{8}$

$2^{x+y} = 16$

Pick up the Solutions



Aim

Create a System of Equations to solve to solve a problem

The soccer free kick problem from the warm up was an example of this.

As you work on the two problems today, be thinking about

How can we model it?

What does the solution tell us?

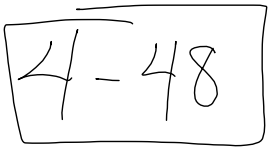
Are there any new strategies that might be useful.

When you get an answer, ask yourself

- Is my answer really my answer?

- 2 problems
- Goal: Set up and solve **both**

Persistence



TOTALS GIVEN
↓

= 4.25

= 3.50

= cost of caramel
= cost of truffles

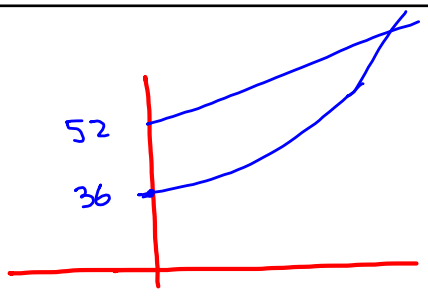
Have me check your group's answer before moving on to

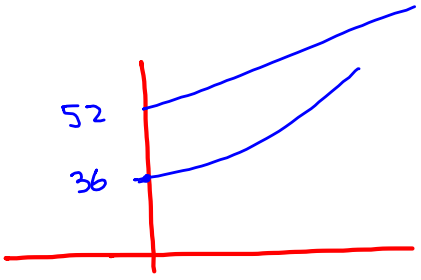
4 - 49 a

The A+ answer will be to the nearest 0.1 years

Job A $52,000, 3000 raises

Job B $36,000, 11% raises





$y = 52000x + 3000$

$y = 36000(1.11)^x$

$52000x + 3000 = 36000(1.11)^x$

B.B.

Assignment

A worksheet and three problems from your textbook, which are listed on the worksheet.

4.... 48, 52-53

When your group is finished

→ Have me check your answer, then

4 - 49

p. 183

47 define variables

i.e. a = cost of chocolate truffles

b = cost of caramel turtles