Do Now

the value of the previous term

If $f(1) = 3$ and $f(n) = -2f(n-1) + 1$, then $f(5) =$

(1) -5

(2) 11

(3) 21

(4) 43

$f(2) = -2f(1) + 1$
$= -2(3) + 1$
$= -6 + 1$
$= -5$

$f(3) = -2f(2) + 1$
$-2(-5) + 1$
$10 + 1$
11

$f(4) = -2f(3) + 1$
$-2(11) + 1$
$-22 + 1$
-21

$f(5) = -2f(4) + 1$
$= -2(-21) + 1$
$42 + 1$
43

Jun 13-11:39 AM

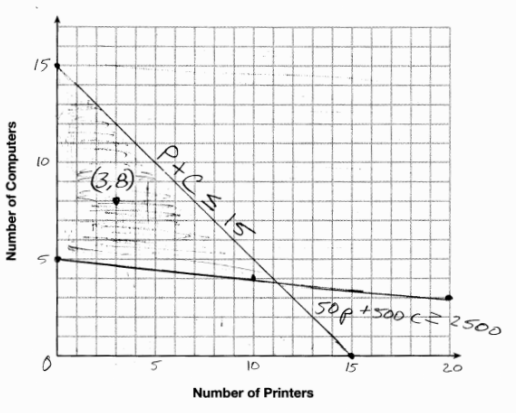
HW ANSWERS

33) Yes both have the same solution $\left(\frac{-3}{4}, 6\right)$

34) $200 difference

43 hours

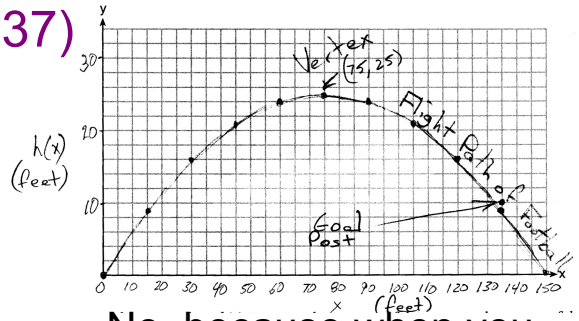
35) $x + y \le 15$
$50x + 500y \ge 2500$



36) $y = 80(1.5)^x$

3,030,140

37)



No, because when you convert 45 yards it would only be 9 feet.

Jun 13-11:44 AM

33 Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$	$8x + 9y = 48$
$12x + 5y = 21$	$-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

$-24x - 27y = -144$
$+24x + 10y = 42$
$-17y = -102$
$y = 6$
$8x + 9y = 48$
$8x + 9(6) = 48$
$8x + 54 = 48$
$8x = -6$
$x = -\frac{3}{4}$

$-8.5y = -51$
$y = 6$
$x = -\frac{3}{4}$

Yes they are the same.

Jun 13-11:40 AM

34 The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \le x \le 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

52 hrs
$15(52-40)+400$
$\$580$

38 hrs
$10(38)$
$\$380$

$\$580 - \$380 = \$200$

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

$10x \quad 0 \le x \le 40$
$10x = 445$
$x = 44.5$

$15(x-40)+400 = 445$
$15x - 600 + 400 = 445$
$15x - 200 = 445$
$15x = 645$
$x = 43$

43 hrs

Jun 13-11:40 AM

35 An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

let x = printers
y = computers

$x + y \leq 15$

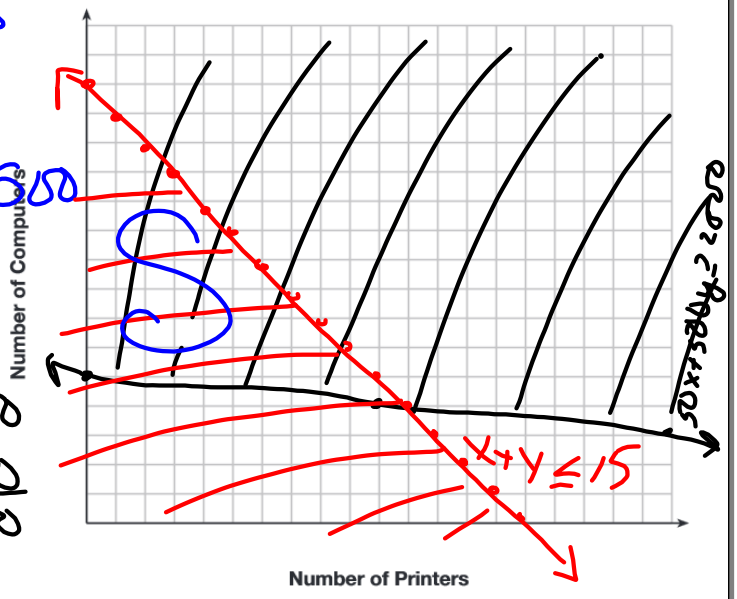
$50x + 500y \geq 2500$

$y \leq -x + 15$

$50x + 500y \geq 2500$

$\frac{500y}{500} \geq \frac{-50x}{500} + \frac{2500}{500}$

$y \geq -\frac{1}{10}x + 5$



Determine a combination of printers and computers that would allow the electronics store to meet all of the constraints. Explain how you obtained your answer.

Jun 13-11:40 AM

36 An application developer released a new app to be downloaded. The table below gives the number of downloads for the first four weeks after the launch of the app.

Number of Weeks	1	2	3	4
Number of Downloads	120	180	270	405

Write an exponential equation that models these data.

$y = a(b)^x$

$a = 80$

$b = 1.5$

$y = 80(1.5)^x$

Use this model to predict how many downloads the developer would expect in the 26th week this trend continues. Round your answer to the *nearest download*.

$y = 80(1.5)^{26}$

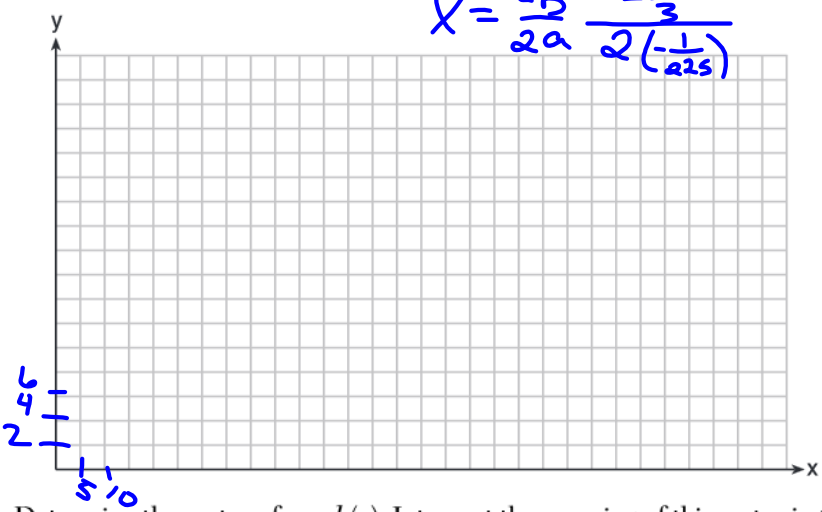
3030,140

Would it be reasonable to use this model to predict the number of downloads past one year? Explain your reasoning.

Jun 13-11:41 AM

37 A football player attempts to kick a football over a goal post. The path of the football can be modeled by the function $h(x) = -\frac{1}{225}x^2 + \frac{2}{3}x$, where x is the horizontal distance from the kick, and $h(x)$ is the height of the football above the ground, when both are measured in feet.

On the set of axes below, graph the function $y = h(x)$ over the interval $0 \le x \le 150$.



$X = \frac{-b}{2a}$ $\frac{-\frac{2}{3}}{2(-\frac{1}{225})}$

X	y
0	0
30	16
75	25
120	16
150	0

Determine the vertex of $y = h(x)$. Interpret the meaning of this vertex in the context of the problem.

The goal post is 10 feet high and 45 yards away from the kick. Will the ball be high enough to pass over the goal post? Justify your answer.

Jun 13-11:41 AM

Things to remember for the Day of the Regents

-Pens (blue or black ink)

-Pencils

-Erasers

-Water bottle

-Sweatshirt

Pace Yourself ~~ Take Your Time ~~ Relax

Good Luck

Jun 13-7:14 PM