Chapter 5 - Review

1. What is the boundary line for the linear inequality $y \leq 2x+7$?

$y = 2x+7$ ↑ solid line

2. Describe the boundary lines for the following system of linear inequalities: $\{y - 2x < 11,\ x - y \leq 13,\ x \in R,\ y \in R\}$

$y-2x<11$ → dashed
$x-y \leq 13$ → solid

3. Which location best describes where you would find the optimal solutions to an objective function? (max + min)

a) outside the feasible region
b) along the boundary line
c) at or near the vertices (corners)
d) within the feasible region

4. Which point below would result in the maximum value of the objective function P = 6y - 4x

a) (3, 2) $P=6(2)-4(3)$ $P=12-12$ $P=0$
b) (-2,7) $P=6(7)-4(-2)$ $P=42+8$ $P=50$
c) (-4,-6) $P=6(6)-4(4)$ $P=-36+16$ $P=-20$
d) (1,11) $P=6(11)-4(1)$ $P=66-4$ $P=62$ max

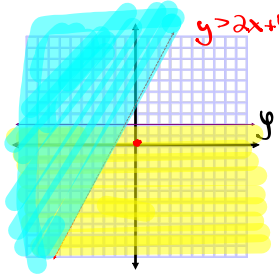
5. Why would you use a dashed boundary line when graphing the solution set of the linear inequality $3x - 5y > 6$?

Use a dashed line because it is greater than and not equal to.

6. Why would you use an open dot to show the point of intersection for the following system of inequalities?
$\{(x,y) | x + y \leq 2,\ x > -3,\ x \in R,\ y \in R\}$

(solid) (dashed)
when a solid line intersects a dashed line, they meet at an open dot.

7. Complete the graph of the solution set for the following system of inequalities by shading in the appropriate locations.
$\{(x,y) | y \leq 2,\ y > 2x + 4,\ x \in R,\ y \in R\}$

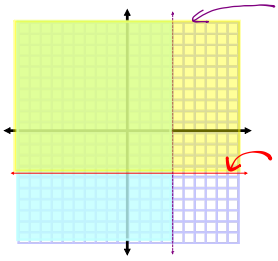


③ $y > 2x+4$

LS	RS
0	$2(0)+4$
	$0+4$
	4

False

8. What system of linear inequalities is shown here?



$x=4$ (shaded left of dashed line)
$x < 4$

$y=-4$ (shaded above the solid line)
$y \geq -4$

Foundations of Math 11 **Chapter 5 Review** **Name:** _____

The Cat Shack is selling t-shirts and hoodies at noon hour.
- Daily sales can be as high as 80 t-shirts and hoodies combined.
- The sales rack has room to hang no more than 50 t-shirts and no more than 40 hoodies.
- T-shirts are sold for $15, and hoodies are sold for $25.

Create a model that could be used to determine the combination of t-shirts and hoodies that will result in maximum sales.

Defining Statements:

Let x = t-shirts
Let y = hoodies
Let S = sales

Restrictions: $x \in W$, $y \in W$

Constraints:

$x + y \leq 80$
$x \leq 50$
$y \leq 40$

Objective Function: $S = 15x + 25y$

Steps to draw the graph:

1. $x+y=80$ | $x=50$ | $y=40$

2. $x+y=80$

x int	y int
$x+0=80$	$0+y=80$
$x=80$	$y=80$
(80,0)	(0,80)

3.

$x+y \leq 80$	
LS	RS
$0+0$	80
0	

True