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# Homework 4 (Systems of Eqn.s and Inequalities)

MA 103, Instructor: Jeffrey Horn, Winter 2017

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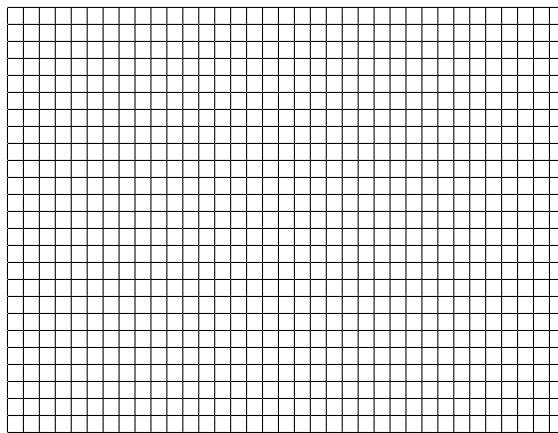
## Instructions

Read sections Sections 1.2-1.4 of Chapter 1 of our textbook. Answer the questions below. Show work for partial credit but be sure to indicate clearly your final answer! (e.g., put a box around it) Attach extra sheets of paper if you need more space.

### Question 1.

Graph the feasible set for the following system of inequalities. Please follow the textbook's convention of shading/hatching the INFEASIBLE regions of the graph, leaving the feasible region(s) clear.

$$\begin{aligned}x + 2y &\leq 8 \\ y &\geq x \\ x &\geq -2\end{aligned}$$



### Question 2.

Which of the following points are within the feasible set for the above system of inequalities? Circle all (and only) those that apply.

A	B	C	D	E	F
(1, 8)	(-4, 2)	(1, 3)	(-1, 2)	(5, 0)	(0, 3)

### Question 3.

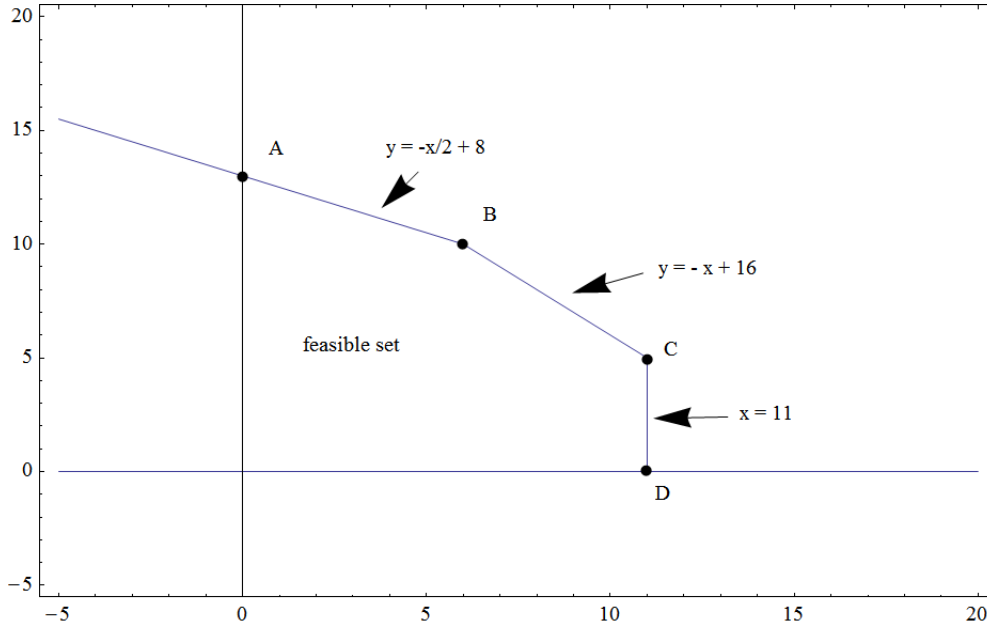
Solve the following system of equations for variables  $x$  and  $y$ :

$$\begin{aligned}32x - 15y &= -52 & x &= \boxed{\phantom{000}} \\ -18x + 27y &= -25 & y &= \boxed{\phantom{000}}\end{aligned}$$

**Question 4.**

For the system of inequalities graphed below, find the coordinates of the four vertices (intersections) labeled A,B,C,D:

vertex:	A	B	C	D
x =				
y =				



**Question 5. Time Apportionment**

As a computer consultant, Sorya must split her time between client A and client B. Client A pays her \$20/hr while client B pays \$14/hr.

1. If Sorya earns \$640 this week, for 35 hours total work (split completely between clients A and B) how many hours were spent on each of the two clients?  $A =$    $B =$
  
2. If the maximum time that Sorya can spend on client A in one week is 32 hours, and the minimum time is eight hours, while the maximum on B is 18 hours and the minimum five, what is the RANGE (max, min) of total pay she can earn in one week (i.e., exactly 40 hours)?