Name:
Recitation Instructor:
Recitation Day and Time:

Studio College Algebra – Exam 1 – February 3, 2015

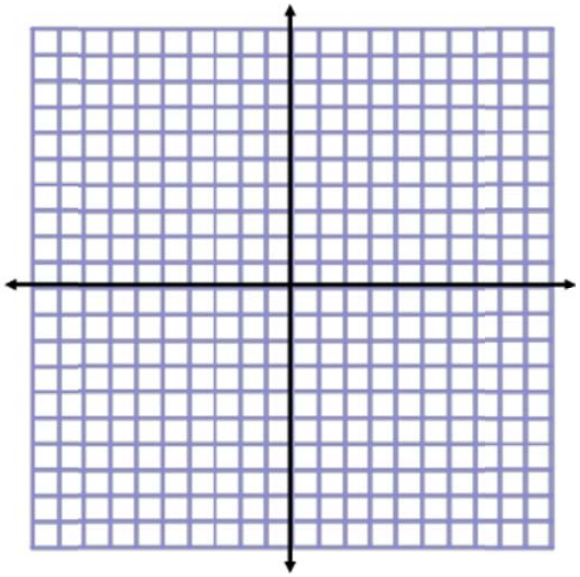
Directions: You will find 16 problems listed below. Each problem is worth 5 points. No notes/books/friends are allowed. Graphing calculator models above the level of a TI-84 plus are not allowed (in particular, calculators with a built in CAS and/or QWERTY keyboard are not allowed). You have one hour to complete this exam.

1. Evaluate and complete the following function table for $f(t) = t^2 - 4kt$, where k is some unspecified parameter.

t	-2	-1	0	1	2
$f(t)$					

2. Solve for x: $9(x+1) = 4x - 3$

3. Graph $-2x + 3y = 9$ on the grid below. Include all intercepts.



4. Solve $|x - 7| = 2x + 8$ and check your answers.

5. Solve $|6x - 1| < 3$.

6. Solve $|5x + 1| > 2$.

7. A truck depreciates in value according to a linear model. If the initial value of the truck is $36,000, and the value thirty years later is $0, what was the depreciated value of the truck after 9 years?

8. Suppose a line passes through (1,2) and (-5,7). What is another point on the line? Show work and/or explain how you arrived at your answer.

9. What is the domain of the function $f(x) = \dfrac{4x}{2x - 7}$?

10. The weekly profit function for a business is $P(x) = 15x - 300$, where x is the number of customers. How many more customers must the business add if it wants to increase profits by \$750 per week?

11. The temperature T in degrees Fahrenheit inside a concert hall m minutes after a power outage during a winter concert is given by $T(m) = -0.5m + 80$. What is the meaning of the slope in this function?

12. The equation $5F - 9C = 160$ gives the relationship between Fahrenheit and Celsius temperature measurements, where F is the temperature in Fahrenheit and C is the temperature in Celsius. What Celsius measure corresponds to a Fahrenheit measure of 82 degrees? Round your answer to the nearest tenth.

13. If the number of cell phone subscribers (in millions) between the years 1993 and 1997 is described by the model $P(x) = 10.25x + 36$, where x is the number of years since 1993. Find and interpret the meaning of $P(2)$.

14. Suppose the cost function for a certain product is given by $C(x) = 25x + 400$ and the revenue function for the product is given by $R(x) = 55x$. Find a profit function for this situation.

15. Find M if $x = 4$ is a solution for $Mx - 2 = 7x + M$.

16. Find a linear model that fits the data set given below.

x	-4	2	8	14	20
y	-2	-4	-6	-8	-10