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Recitation Instructor and Time: _____

**Studio College Algebra – Exam 1
September 16, 2008**

Directions: There are 16 problems on this exam. Please show all your work.

1. Complete the following function table for $f(x) = -4x^2 + 3x$.

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

2. Rewrite the formula $K(g) = \frac{5b}{g + 6b}$ at $g = 4b$, and simplify completely.

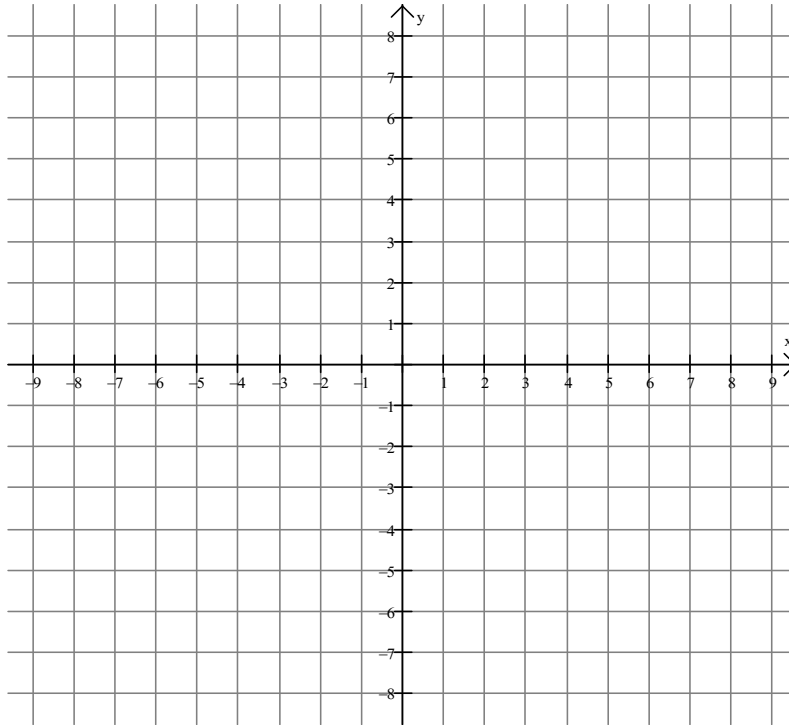
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3. Solve for x : $24x - 13 = 13x + 31$.

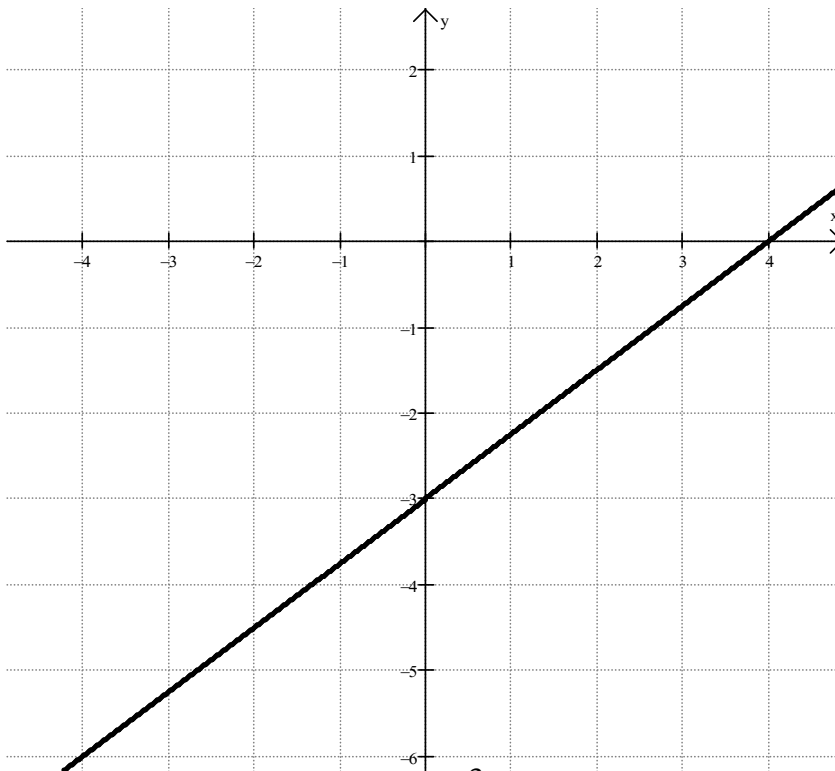
4. Suppose $x = 3$ solves $Bx - 5 = 5x + B$. Solve for B .

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5. Graph $5x - 5y = 10$ on the grid given below.



6. Find the equation of the graph given below.



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7. Suppose a line passes through (4,2) and (6,5). What is another point on the line?

8. Solve: $2x - 4 \leq 8 - 6x$

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9. Solve: $4x + 1 < 7x + 4 < 3x + 8$

10. Solve the system for x and y , if possible.
$$\begin{cases} 2x + y = 5 \\ 2x - 2y = -13 \end{cases}$$

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11. The total price of a new fridge is \$1,298, including 7.3% sales tax. How much of the total price is sales tax (in dollars)?

12. The supply for a product is given by $p - 2q = 120$, and the demand for the product is given by $p + 3q = 370$. Find the equilibrium point.

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13. Suppose that in a certain town, the population (in thousands), between the years 1950 and 1960, could be modeled by the function $P(x) = 1.343x + 2.13$, where x is the number of years after 1950. In what year did the population pass 7,502 people?

14. A taxi company depreciates its vehicles using a straight-line depreciation method. Suppose that a new taxi is initially worth \$12,000, and 30 years later it is worth \$0. How much is the taxi worth after 12 years?

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15. The freezing point of water is 0 degrees Celsius, which corresponds to 32 degrees Fahrenheit. The boiling point of water is 100 degrees Celsius, which corresponds to 212 degrees Fahrenheit. If x represents temperature in Celsius and y represents temperature in Fahrenheit, we can describe the given information as the ordered pairs $(0, 32)$, and $(100, 212)$.

a) What is the slope of the line connecting the points $(0, 32)$, and $(100, 212)$?

b) Find the equation of the line, in slope-intercept form, connecting the points in part (a).

16. Suppose the number of satellite television subscribers (in millions) between the years 2000 and 2007 could be described by the model $P(x) = 22x + 15$, where x is the number of years since 2000. Assuming the model hold for years past 2007, how many subscribers will there be in the year 2012?