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**Math 100 Section E/F  
Exam 1  
Spring 2007**

1. Fill in the function table for  $f(x) = \frac{x^2 + 3x + 2}{2}$ .

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

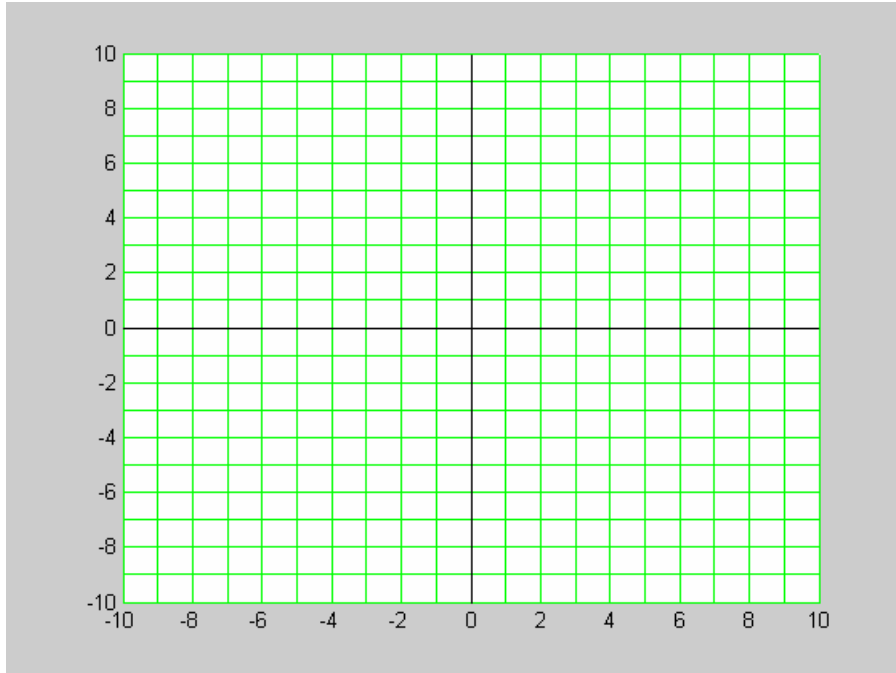
2. Evaluate  $R(z) = \frac{aY}{z - 4a}$  at  $z = 5a$ .

3. Solve for  $x$ :  $13x - 2 = 5x + 14$

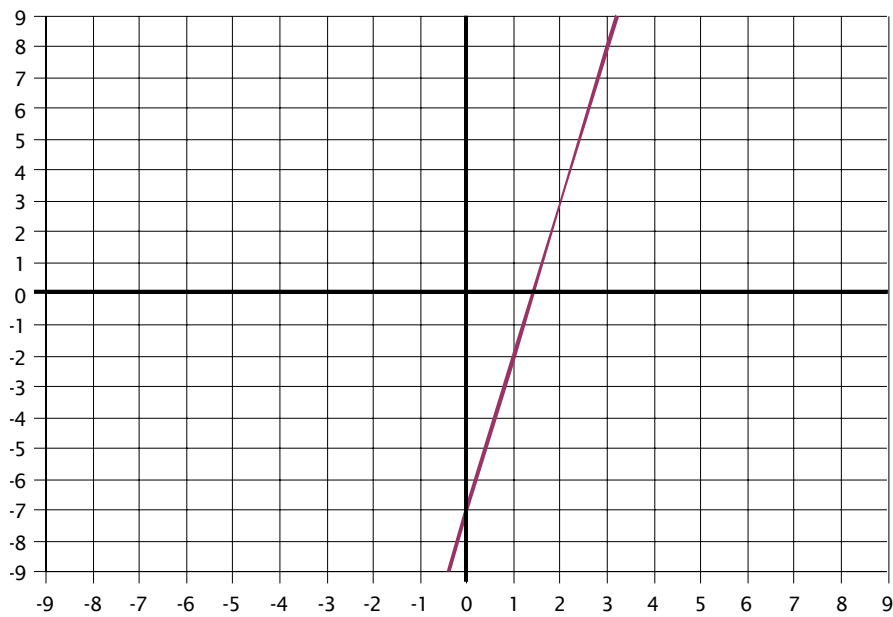
4. Suppose  $x = 4$  solves  $ax - 6 = 3x + a$ . What is  $a$ ?

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5. Graph the line  $5x + 2y = 10$ .



6. What is the equation of the line shown in the following graph?



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7. Suppose a line passes through the points  $(-4, 1)$  and  $(6, 3)$ . What is another point on the line?

8. Simplify (solve) the inequality  $2x + 5 \leq 7 - 5x$ .

9. Simplify (solve) the inequalities  $x - 2 < 3x + 2 < 8 - 3x$ .

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10. If possible, solve the system for  $x$  and  $y$

$$\begin{aligned} 2x + y &= 4 \\ -4x - 2y &= 6 \end{aligned}$$

11. If possible, solve the system for  $x$  and  $y$

$$\begin{aligned} -3x + 7y &= 1 \\ 6x - 10y &= 2 \end{aligned}$$

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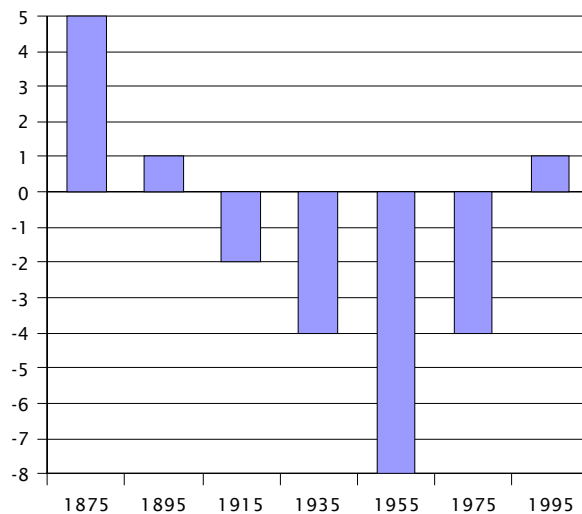
12. Suppose bus ridership  $R$  and population  $P$  in a town are related by the equation  $2P - 80R = 60,000$ . For every 1,000 new people who move to town, how much will bus ridership increase?

13. A business depreciates its manufacturing equipment using a straight-line depreciation over 25 years. If the initial value of the equipment is \$200,000 and its value after 25 years will be 0, what is the depreciated value after 15 years?

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14. If student Joe Schmoe has a course average score above 89, he will earn an A in the course (89 is a B, anything higher is an A). Suppose his scores are 79, 96, and 84 and his teacher said the final exam is worth twice the weight of the other exams. Write an inequality for the range of scores on the final exam which will result in Joe earning an A?

15. A linear model is developed to predict the number (in millions) of women in the workforce between 1875 and 1995. Comparing the model values to the observed data leaves the following residuals. Based on these residuals, does a linear model appear to be a good choice for this data? Write one or two sentences explaining why or why not.



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16. An investor owns two rental properties worth a total of \$300,000. Every year, she collects rent equal to 5% of the worth of the first property and rent equal to 7% of the worth of the second property. Her total annual rent from the two properties is \$17,200. How much is each property worth?

**Pledge:**

On my honor, as a student, I have neither given nor received unauthorized aid on this

examination: \_\_\_\_\_

(signature)

(date)