

MATHEMATICS 90

FINAL EXAM A

Fall 2003

NAME: _____

STUDENT NUMBER: _____

Put a check mark by your section:

01	MW 9:00AM	Acuff
02	MWF 8:00AM	McAllister
03	MWF 9:30AM	Miller
04	MW 12:40PM	Nguyen
05	MW 2:30PM	Hole
06	MW 4:20PM	Herichi
08	TR 8:00AM	Romero

09	TR 9:50AM	Beltran
10	TR 11:40AM	Khodaghlian
11	TR 11:40PM	Chan
12	TR 1:30PM	Lodwick
13	TR 4:20PM	Chan
14	TR 6:10PM	Miller
15	MWF 11:00AM	Nava

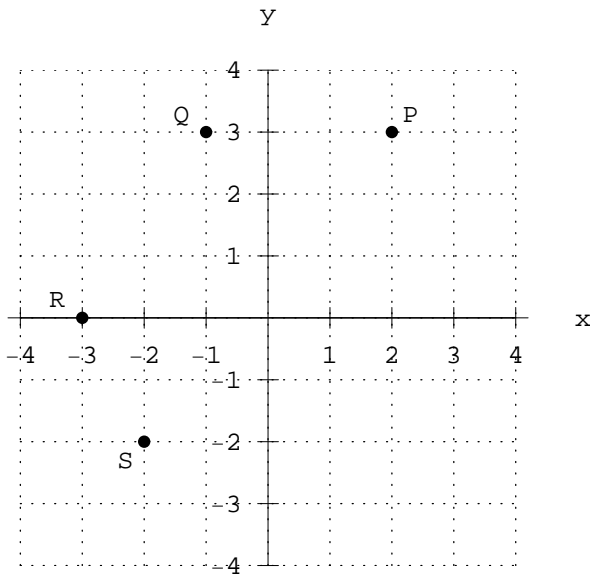
- This exam has 25 questions. Each question is worth 4 points.
- This is a closed book exam. No notes, no books allowed.
- No calculators allowed.
- Write your name at the top of each page.
- If you do not have enough room to work on a particular problem, you can use the back of the previous page or an extra sheet of paper. Make sure that the graders can find any work that you want graded. Write your name and student number on any extra paper.

Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Score													

Question	14	15	16	17	18	19	20	21	22	23	24	25	TOTAL
Score													

NAME: _____

1. Consider the points P, Q, R, S on the Cartesian plane as shown:



(a) What are the coordinates of Q?

Answer: _____

(b) Which points (if any) are in Quadrant IV?

Answer: _____

(c) Which points (if any) are on the line $y = x$?

Answer: _____

(d) Which points (if any) are on the graph of $y = x^2 - 1$?

Answer: _____

2. Let $f(x) = \frac{1}{2}x^2 - 2$. Find the following:

(a) $f(2)$

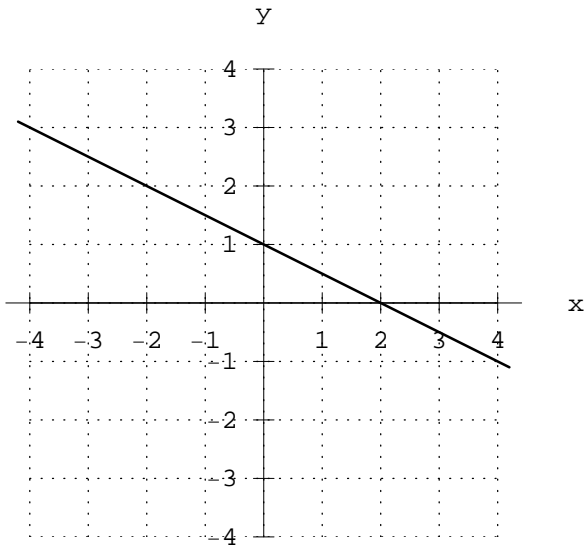
Answer: _____

(b) $f(-1)$

Answer: _____

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3. Consider the line graphed below



(a) What is the y -intercept of the line?

Answer: _____

(b) What is the slope of the line?

Answer: _____

(c) What is the equation of the line?

Answer: _____

(d) What is the y -coordinate of a point on this line whose x -coordinate is 6?

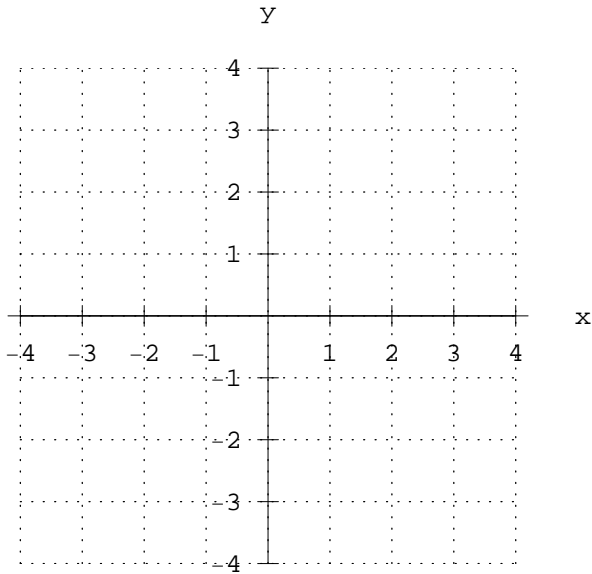
Answer: _____

4. Are the graphs of $3y = 6 + x$ and $y + 3x = 7$ parallel, perpendicular, or neither.

Answer: _____

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5. Sketch the graph of the equation $2x - 3y = 6$ below.



6. Solve the system of equations $\begin{cases} 3x - 2y = 1 \\ x + y = 7 \end{cases}$ (or write "No solution").

$x =$ _____

$y =$ _____

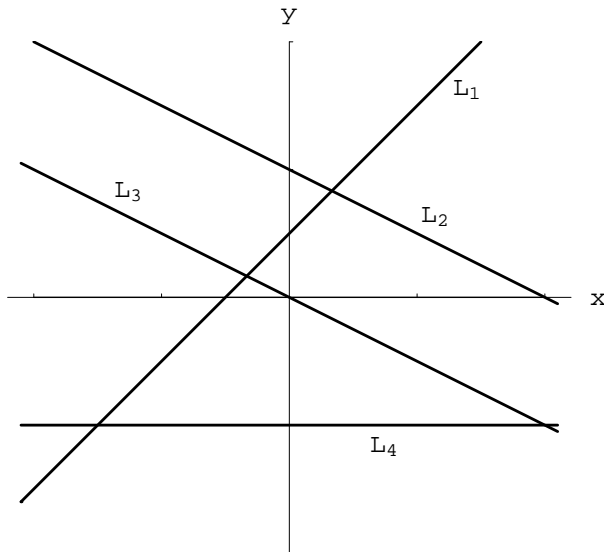
7. Solve the system of equations $\begin{cases} x - 2y = 1 \\ -2x + 4y = 3 \end{cases}$ (or write "No solution").

$x =$ _____

$y =$ _____

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8. Consider the lines L_1, L_2, L_3, L_4 on the Cartesian plane as shown:



- (a) Which lines have negative slope? **Answer:** _____
- (b) Which line has the least y -intercept? **Answer:** _____
- (c) Which line has the largest slope? **Answer:** _____
- (d) Which lines are graphs of constant functions? **Answer:** _____

9. Ann Marie has been pricing train fares for a trip to New York. Three adults and four children would pay \$159 in total. Two adults and three children would pay \$112 in total. Let a be the price of an adult's ticket and c be the price of a child's ticket. Write a system of linear equations which could be solved to get the price of each ticket. **DO NOT SOLVE THIS SYSTEM OF EQUATIONS!**

Answer: _____

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10. Simplify $(3x^2 - xy + 1) - 2(x^2 - 2)$.

Answer: _____

11. Simplify $\frac{x^3 - 3x^2}{x^2}$

Answer: _____

12. Find the equation of the straight line passing through $(1, 1)$ and $(4, 3)$.

Answer: _____

13. Find the equation of the straight line passing through $(1, 1)$ with slope equal to -3 .

Answer: _____

14. Find the equation of the straight line passing through $(1, 1)$ and parallel to $2x + 3y = 1$.

Answer: _____

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15. Simplify $\frac{(3x)^2y^4}{3xy^{-2}}$.

Answer: _____

16. Simplify $\left(\frac{x^3y^2}{2x^2}\right)^2$

Answer: _____

17. Calculate the product $(x^2 - 2)(2x^2 - x - 2)$ and then simplify.

Answer: _____

18. Calculate the product $(a - 2)^3$ and then simplify.

Answer: _____

19. Calculate the product $(x^2 - 2)(x + 2)$ and then simplify.

Answer: _____

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20. Solve the equation $x^2 - 3x - 4 = 0$ for x .

$x =$ _____

21. Factor completely the polynomial $2x^2y - 6xy^2$.

Answer: _____

22. Factor completely the polynomial $25a^2 - b^2$.

Answer: _____

23. Factor completely the polynomial $3y - 5x + 15 - xy$.

Answer: _____

24. Solve the equation $2a^2 - a - 3 = 0$ for a .

$a =$ _____

25. Factor completely the polynomial $a^3 + 8$.

Answer: _____