

MATHEMATICS 91

FINAL EXAM B

Fall 2003

NAME:

STUDENT NUMBER:

Put a check mark by your section:

	01	MWF 9:30AM	Lloyd
	02	MWF 11:00AM	Nguyen
	03	MW 6:10PM	Kuranak
	04	TR 8:00AM	Harjuno
	05	TR 11:40AM	Shvetsov
	06	TR 1:30PM	Herichi
	07	TR 4:20PM	Mediza

- 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. Simplify $\frac{1}{x+3} - \frac{1}{x-3}$

Answer: _____

2. Simplify $\frac{2x^2 + 6x}{6} \cdot \frac{9}{2x+6}$

Answer: _____

3. Simplify $\frac{x^2 + 5x - 24}{8+x}$

Answer: _____

4. Simplify $\sqrt{\frac{75a^5}{27ab^4}}$ $a, b > 0$

Answer: _____

5. Simplify $\frac{3-a}{a^2-4} + \frac{1}{a-2}$

Answer: _____

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6. Simplify $\sqrt{\frac{20}{x^2}} - \sqrt{\frac{5}{4x^2}}$ $x > 0$

Answer: _____

7. Simplify $(27)^{2/3}$

Answer: _____

8. Simplify $\sqrt[3]{-8y^3}$

Answer: _____

9. Simplify $(2\sqrt{3} - 1)^2$

Answer: _____

10. Simplify $\frac{(3x^{1/3})^2}{x^{1/6}} \cdot \frac{1}{x^{1/2}}$ $x > 0$

Answer: _____

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11. Solve $5 + \frac{1}{x} = \frac{2}{x}$

$x =$ _____

12. Solve $\frac{3x}{x-2} = 1$

$x =$ _____

13. Solve $\frac{1}{x+1} = x-1$

$x =$ _____

14. Solve $x-2 = \frac{3}{x}$

$x =$ _____

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15. Solve $x^2 - 4x + 2 = 0$

$x =$ _____

16. Solve $\sqrt[3]{x-2} + 3 = 1$

$x =$ _____

17. Solve $\frac{3}{x} - \frac{2}{x+2} = 1$

$x =$ _____

18. Solve $|-2x| + 5 = 9$

$x =$ _____

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19. Evaluate the following:

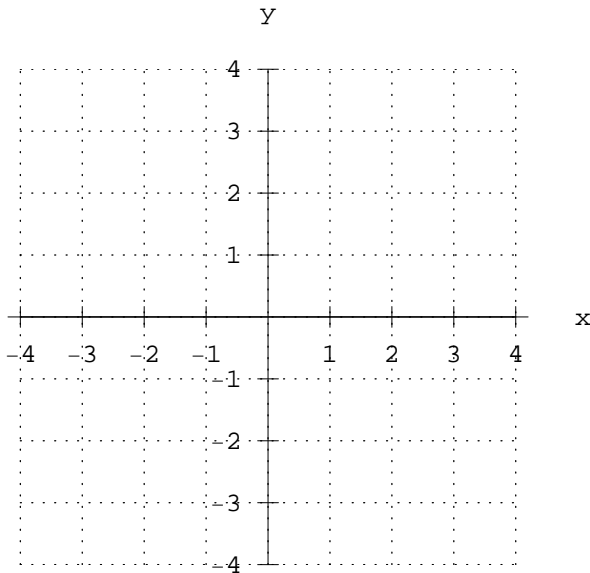
(a) $\frac{9!}{7!}$

Answer: _____

(b) $\sum_{i=1}^3 2^i$

Answer: _____

20. Graph the equation $y = 2 - (x + 1)^2$ below. Label the vertex of the graph.



21. Write the following complex numbers in the form $a + bi$:

(a) $(5 - 2i)(4 + i)$

Answer: _____

(b) $3 - \sqrt{-9}$

Answer: _____

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22. What is the vertex of the graph of $y = 2x^2 + 4x + 7$?

Answer: _____

23. The product of a positive real number and 4 less than that number is 2. Find the number.

Answer: _____

24. If there is no wind, a certain airplane can fly from Los Angeles to Boston in 4 hours. Against a 120 miles per hour headwind the same airplane takes 5 hours for the trip. What is the speed of the airplane when there is no wind?

Answer: _____

25. Solve $x^4 - 5x^2 + 4 = 0$.

$x =$ _____