MATHEMATICS 91

FINAL EXAM **Math 91 Spring 2009 VERSION Mintaka**

STUDENT NAME: _____

INSTRUCTOR NAME: _____

SECTION: _____

- This exam has 25 questions. Each question is worth 4 points.
- Show sufficient work to support your answers. If you do not show your work when indicated, you may lose points, EVEN IF YOU HAVE THE CORRECT FINAL ANSWER.
- This is a closed book exam. No notes, no books allowed.
- No calculators allowed.
- Write your name at the top of each page.
- Show your work in the space indicated. 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.

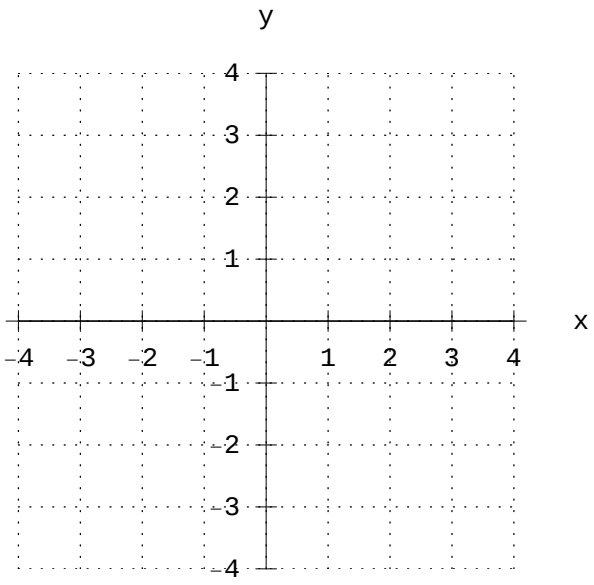
Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Score													

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

NAME: _____

1. License plates in Oregon consist of three letters, followed by three digits. How many possible Oregon license plates are there? (Write your answer using exponents—do **not** multiply it all out.)
   SHOW WORK HERE: Answer: _____

2. Graph the equation $(x-3)^2 + (y+2)^2 = 1$ below.

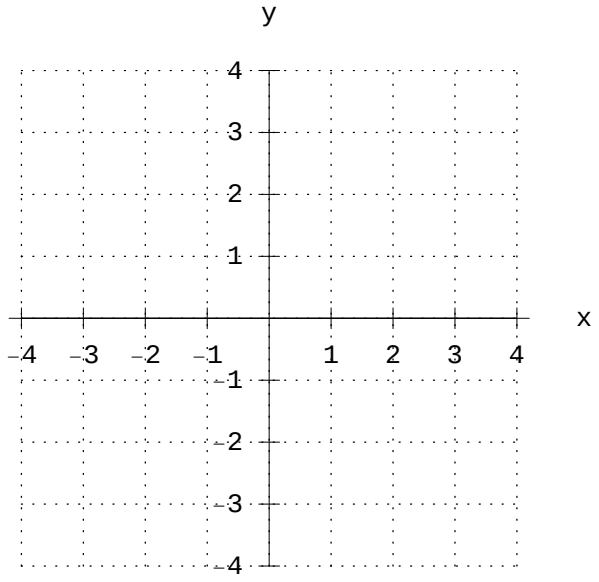


3. Evaluate $\sum_{j=1}^{4}(j-3)$. Answer: _____

   SHOW WORK HERE:

NAME: _____

4. GRAPH the equation $y = -2x^2 - 4x - 1$ below, and LABEL the vertex of the graph.



SHOW WORK HERE:

5. Write an equation for a quadratic function that opens upward and has a vertex at $(7, -2)$. Answer: _____

SHOW WORK HERE:

NAME: _____

6. Simplify $\dfrac{5-x}{x-5}$. Answer: _____

SHOW WORK HERE:

7. Perform the indicated operation.

$\dfrac{2x^2-11x+5}{4x-20} \div \dfrac{6x-3}{8}$. Answer: _____

SHOW WORK HERE:

8. Find the LCD of $\dfrac{19}{3x}$ and $\dfrac{5}{6x^3}$. Answer: _____

SHOW WORK HERE:

NAME: _____

9. Perform the indicated operation.

$$\frac{x}{x^2-1} - \frac{2}{x^2-2x+1}$$

Answer: _____

SHOW WORK HERE:

10. Solve $\frac{t-4}{2} - \frac{t-3}{9} = \frac{5}{18}$.

Answer: _____

SHOW WORK HERE:

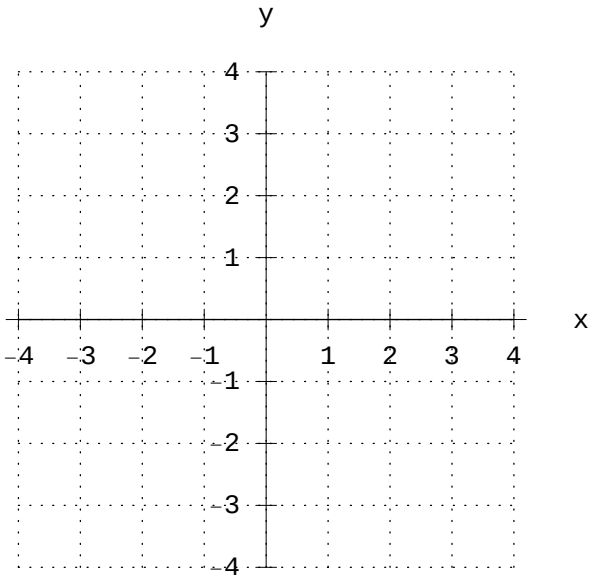
11. Simplify $\frac{2x^{-1}+3y^{-1}}{4x^{-2}-9y^{-2}}$.

Answer: _____

SHOW WORK HERE:

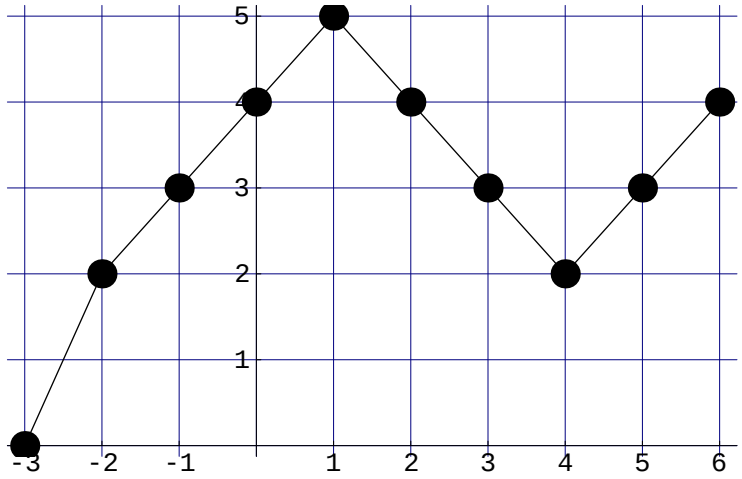
NAME: _____

12. Graph the equation $y = 1 - 2x$ below.



13. Below is a graph of $y = f(x)$.
Find all x such that $f(x) = 4$.

Answer: _____



14. Simplify $\sqrt[3]{\frac{27}{8}}$.

Answer: _____

SHOW WORK HERE:

NAME: _____

15. Simplify $(-8)^{-\frac{2}{3}}$. Answer: _____

SHOW WORK HERE:

16. Simplify $\dfrac{\sqrt{a^7b^8}}{\sqrt{a^3b^2}}$. Answer: _____

SHOW WORK HERE:

17. Simplify $3\sqrt{8} - \sqrt{32}$. Answer: _____

SHOW WORK HERE:

NAME: _____

18. Rationalize the denominator $\frac{6}{3-\sqrt{7}}$. Answer: _____

SHOW WORK HERE:

19. Solve $\sqrt{9-x} = x - 3$. Answer: _____

SHOW WORK HERE:

20. The question below is about complex numbers. Write your answer in the form $a + bi$.

Find $\frac{10}{2-i}$. Answer: _____

SHOW WORK HERE:

NAME: _____

21. Solve $x^2 = 50$. Answer: _____

SHOW WORK HERE:

22. Find all solutions of $x(5x + 2) = 3$. Answer: _____

SHOW WORK HERE:

23. Find the domain of the rational expression $f(x) = \dfrac{5x}{x - 7}$.
SHOW WORK HERE: Answer: _____

NAME: _____

24. Find an equation of the straight line through $(2, -8)$ and $(4, -12)$.
SHOW WORK HERE: Answer: _____

25. Find the exact distance between the points $(2, -6)$ and $(-2, -3)$. (Do not approximate.)
SHOW WORK HERE: Answer: _____