

# MATHEMATICS 90

FINAL EXAM

Fall 2008 VERSION Masha

STUDENT NAME:

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INSTRUCTOR NAME:

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SECTION:

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- 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.

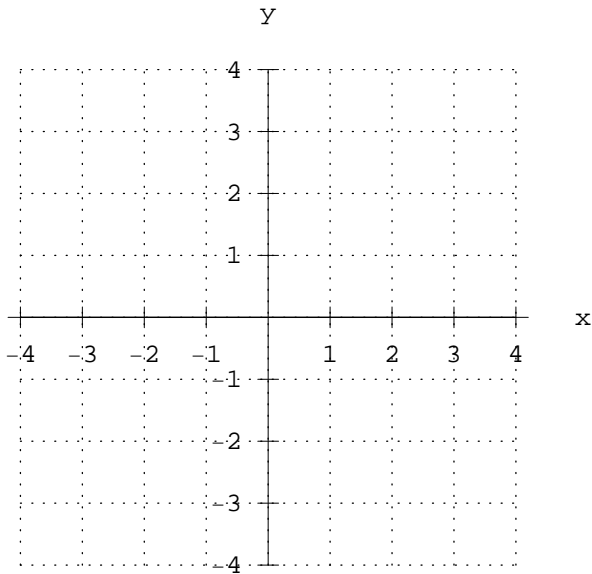
Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Score													

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

NAME: \_\_\_\_\_

1. (a) On the graph below, plot the point  $(-3, -2)$ .      **Answer:** \_\_\_\_\_

(b) What quadrant is  $(-3, -2)$  in?      **Answer:** \_\_\_\_\_



2. Let  $g(x) = 7 - 3x^3$ . Find the following:

(a)  $g(-2)$       **Answer:** \_\_\_\_\_

SHOW WORK HERE:

(b)  $g\left(\frac{1}{3}\right)$       **Answer:** \_\_\_\_\_

SHOW WORK HERE:

NAME: \_\_\_\_\_

3. Simplify  $\frac{6xy^{-3}}{6^{-1}x^{-5}y^4}$ . Write the result using positive exponents only.

Answer: \_\_\_\_\_

SHOW WORK HERE:

4. Simplify  $\frac{40h^7 + 24h^5}{8h^2}$

Answer: \_\_\_\_\_

SHOW WORK HERE:

5. David is making punch for a party. He wants to combine a 20% real fruit juice drink with a 100% real fruit juice drink to get 16 cups of a mixture that is 80% real fruit juice. How much of each type of drink should he use?

SHOW WORK HERE: Answer: \_\_\_\_\_

NAME: \_\_\_\_\_

6. Simplify  $\frac{x^2y^4z^{10}}{xy^7z^8}$ .

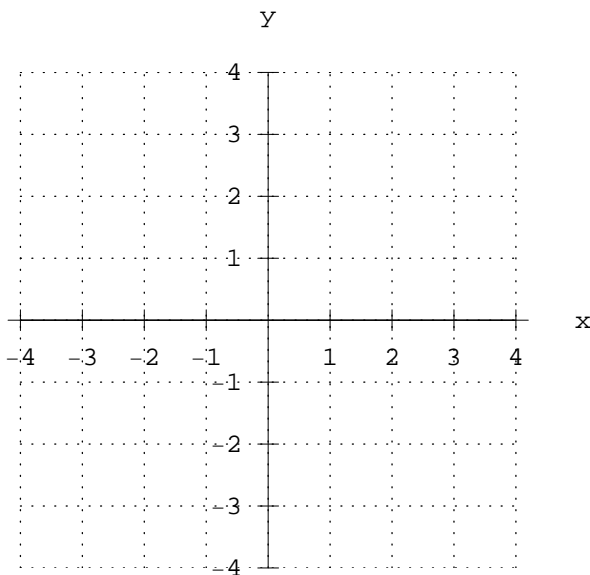
Answer: \_\_\_\_\_

SHOW WORK HERE:

7. Graph the function  $f(x) = x^2 - 3$  by plotting points. Then find its domain and range. Use interval notation.

Domain is \_\_\_\_\_

Range is \_\_\_\_\_



8. What is the slope of the line whose equation is  $y = 7x - 3$ ?

SHOW WORK HERE:

Answer: \_\_\_\_\_

9. Find an equation of the straight line passing through  $(3, 2)$  with slope equal to  $-5$ .

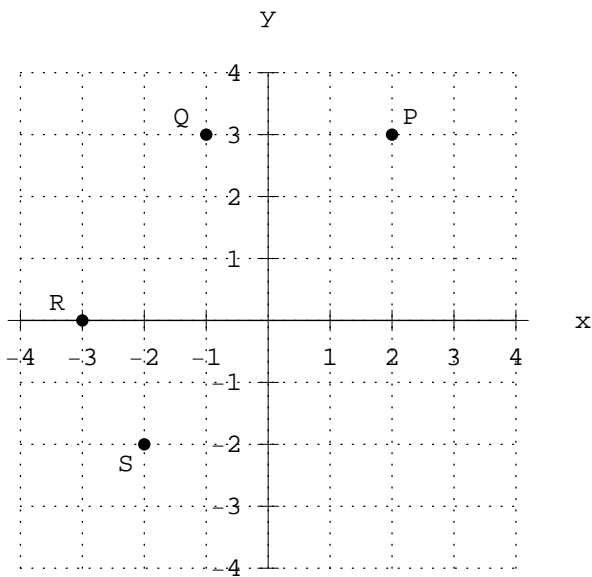
SHOW WORK HERE:

Answer: \_\_\_\_\_

NAME: \_\_\_\_\_

10. What is the slope of the line which passes through points S and P on the graph below?

Answer: \_\_\_\_\_



SHOW WORK HERE:

11. Find the greatest common factor (GCF) of  $12x^6y^5$  and  $18x^4y$ .

Answer: \_\_\_\_\_

12. Identify each of the following as a monomial, a binomial, or a trinomial.

(a)  $47a^2b^4$

Answer: \_\_\_\_\_

(b)  $x^2 - 2x + 1$

Answer: \_\_\_\_\_

13. The equation of line **L1** is  $2x + 7y = 9$ . What is the slope of a line perpendicular to **L1**?

SHOW WORK HERE:

Answer: \_\_\_\_\_

NAME: \_\_\_\_\_

14. Simplify  $\left(\frac{207x^{42}y^{-16}z^{81}}{4328x^{516}yz^{47}}\right)^0$ .

SHOW WORK HERE:

Answer: \_\_\_\_\_

15. Factor completely the polynomial  $2x^2 + 9x + 10$ .

SHOW WORK HERE:

Answer: \_\_\_\_\_

16. Factor completely the polynomial  $12x^3y - 16x^2y$ .

SHOW WORK HERE:

Answer: \_\_\_\_\_

17. Factor completely the polynomial  $a^2 - 49b^2$ .

SHOW WORK HERE:

Answer: \_\_\_\_\_

18. Factor completely the polynomial  $7x - 14y + 5x^2 - 10xy$ .

SHOW WORK HERE:

Answer: \_\_\_\_\_

NAME: \_\_\_\_\_

19. Simplify  $(7x^2 - xz + 1) - 2(x^2 - 3)$ .  
SHOW WORK HERE:

Answer: \_\_\_\_\_

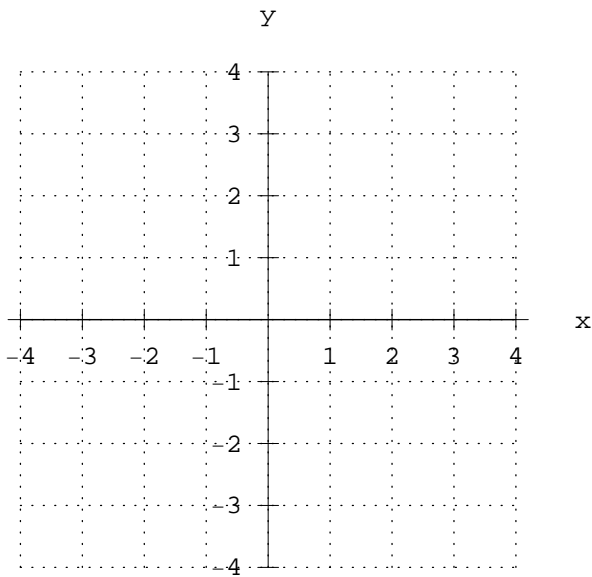
20. Solve:  $(x - 7)(x + 8) = 0$ .  
SHOW WORK HERE:

Answer: \_\_\_\_\_

21. Below is the entire graph of a relation.

22. On the coordinate plane below, draw an example of a graph which is NOT the graph of a function. Explain how you know that it is not the graph of a function.

Answer: \_\_\_\_\_



NAME: \_\_\_\_\_

23. Calculate the product  $(x^2 - 4)(3x^2 - 5)$  and then simplify.

SHOW WORK HERE:

Answer: \_\_\_\_\_

24. Solve the system of equations  $\begin{cases} 3x - 2y = 14 \\ 6x - 3y = 27 \end{cases}$  (or write "No solution" if none exists).

SHOW WORK HERE:

Answer: \_\_\_\_\_

25. Solve the system of equations  $\begin{cases} x + 5y = 9 \\ 3x + 15y = 18 \end{cases}$  (or write "No solution" if none exists).

SHOW WORK HERE:

Answer: \_\_\_\_\_

26. The sum of two numbers is 100. The difference between the numbers is 40. What are the numbers?

SHOW WORK HERE:

Answer: \_\_\_\_\_