

MATHEMATICS 90

FINAL EXAM

Spring 2009 VERSION GM

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. 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!

2. The length of a rectangle is 7 centimeters less than twice its width. Its area is 30 square centimeters. Find the dimensions of the rectangle.

Answer: _____

SHOW WORK HERE:

3. Find the equation of a vertical line through the point $(-3, 5)$.

Answer: _____

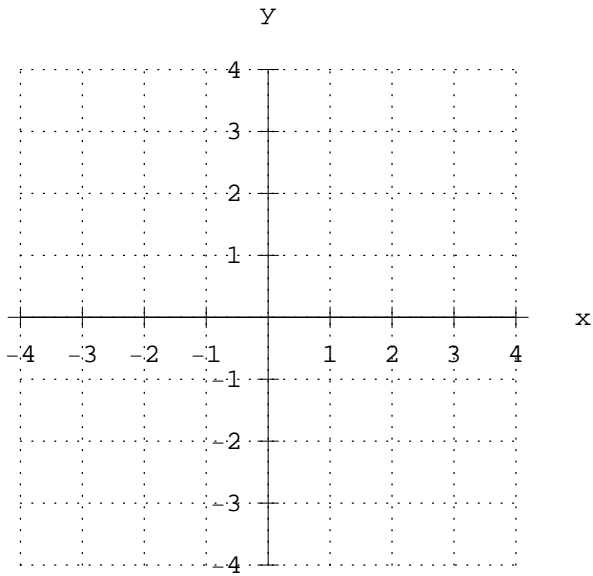
SHOW WORK HERE:

4. What is the degree of the polynomial $4x^7 - 2x^2 + 5$? Answer: _____

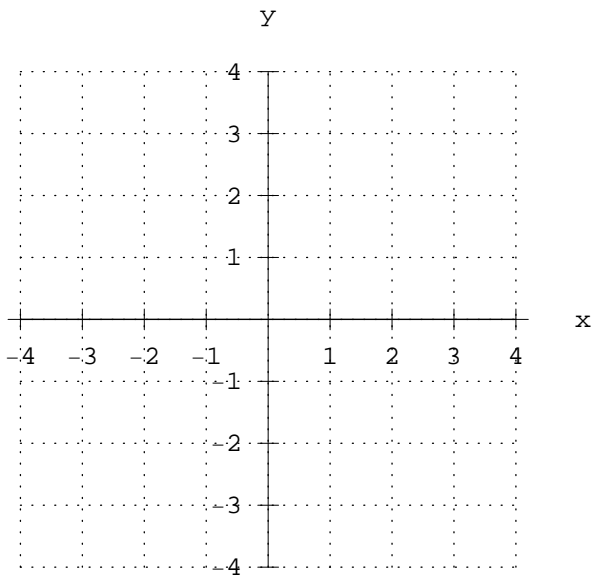
SHOW WORK HERE:

NAME: _____

5. Plot $(-3, 1)$ on the graph below.



6. Graph $2x + y = 3$ below.



7. Are the lines $6 + 5x = 3y$ and $3x + 5y = 8$ parallel, perpendicular, or neither?

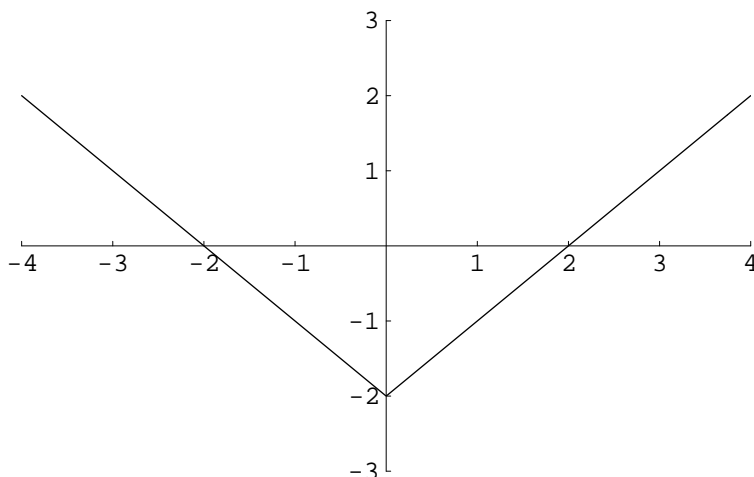
Answer: _____

SHOW WORK HERE:

NAME: _____

8. Identify the x -intercept(s) and y -intercept(s) on the graph below. (Note: Write your answers as **ordered pairs**—do not simply circle them on the graph.)

Answer: _____



9. Find an equation of the line passing through the points $(2, 2)$ and $(-1, -16)$.

Answer: _____

SHOW WORK HERE:

10. Find the domain of the function $f(x) = \frac{1}{x - 7}$.

Answer: _____

SHOW WORK HERE:

NAME: _____

11. Solve the system of equations $\begin{cases} 3x - 2y = 5 \\ 6x - 3y = 9 \end{cases}$.

(If no solution exists, write "No solution." If there are infinitely many solutions, write "Infinitely many solutions.")

SHOW WORK HERE:

Answer: _____

12. Solve the system of equations $\begin{cases} y = 2x - 6 \\ 4x - 2y = 12 \end{cases}$.

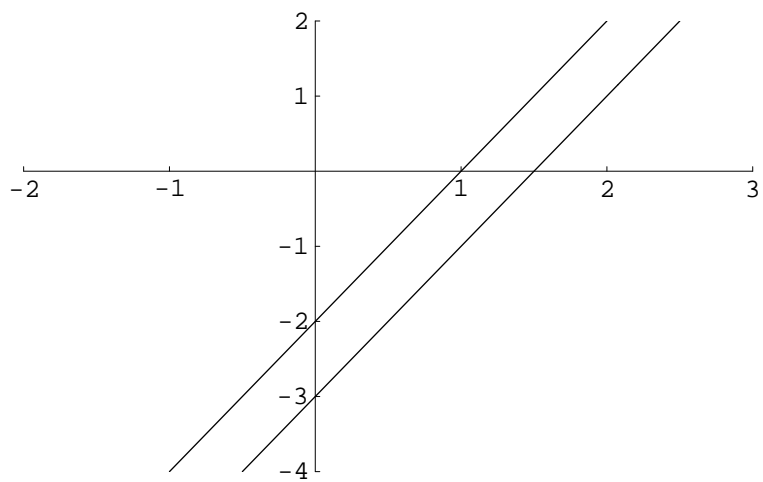
(If no solution exists, write "No solution." If there are infinitely many solutions, write "Infinitely many solutions.")

SHOW WORK HERE:

Answer: _____

13. The two lines in the graph below represent a system of equations. Is this a consistent system? Why or why not?

Answer: _____



NAME: _____

14. Two numbers total 76 and have a difference of 18.
Find the two numbers.

Answer: _____

SHOW WORK HERE:

15. Simplify $(-8mn^5)(9m^3n^2)$.

Answer: _____

SHOW WORK HERE:

16. Simplify $x^2y + xy - y + 9x^2y - 3y + xy$ by combining like terms.
(Do not factor.)

Answer: _____

SHOW WORK HERE:

NAME: _____

17. Multiply $(4x - 6)(5x + 1)$.

Answer: _____

SHOW WORK HERE:

18. Multiply $(b + 3)(2b^2 + b - 4)$.

Answer: _____

SHOW WORK HERE:

19. Simplify $(a^{-4}b^2)^{-6}$.

Write your answer using positive exponents only.

Answer: _____

SHOW WORK HERE:

NAME: _____

20. Divide $\frac{x^3y^2 - xy^4}{xy}$.

Answer: _____

SHOW WORK HERE:

21. Factor $x^3 + 2x^2 + 4x + 8$ completely.

Answer: _____

SHOW WORK HERE:

22. Factor $x^2 - 7x - 18$ completely.

Answer: _____

SHOW WORK HERE:

NAME: _____

23. Factor $2x^3 + 11x^2 + 15x$ completely.

Answer: _____

SHOW WORK HERE:

24. Factor $x^2 - \frac{1}{9}$ completely.

Answer: _____

SHOW WORK HERE:

25. Solve $x^2 - 13x + 22 = 0$.

Answer: _____

SHOW WORK HERE: