

TAKE HOME EXAM I

MAT092 · FALL 2008

You must show all work to get full credit.

Problem 1. Factor each polynomial completely, if possible

- $x^2 - 9$
- $-3xy + x^2 + 2y^2$
- $-4x^2y - 4x^3 + 24xy^2$
- $-7x^4 + 31x^2 + 12$

Problem 2. Graph the linear equation $3x - 2y = 8$. Determine the slope and x and y intercepts

Problem 3. Use the addition to method to solve the following system of equation

$$\begin{cases} x + 2y = 3 \\ 4x + 2y = 12 \end{cases}$$

Problem 4. Use the substitution method to solve the following system of equation.

$$\begin{cases} x + 2y = 4 \\ x - y = 2 \end{cases}$$

Problem 5. Find the equation of the line that passes through $(-2, 4)$ and $(5, -6)$ and draw its graph.

Problem 6. Evaluate each expression

- $6 \cdot 5 - 18 \div 9 \cdot 4^2$
- $2 + 3[2 \cdot 8 - (3^2 + 2 \cdot 3)]$
- $-\frac{9}{16} - (-\frac{1}{4})$
- $53(-27) + (-32) + (-7)$
- $-27 + (-3) + (-13) + 22$

Problem 7. Write each number in scientific notation

- 728
- 0.0123
- 9,370,000
- 0.00942

Problem 8. Expand the following algebraic expression.

- $(2x + 3)(x + 4)$
- $(3x + 4)(2x + 5)$
- $(x^2 - 5)(x^2 - 7)$

Date: December 4, 2008 *Due Date:* Friday, December 12, 2008.

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