

EXAM 3 - MATH 111

Wednesday, March 26, 2003

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Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Solve the logarithmic equation $(\log x)^3 = \log(x^4)$.
2. Brian deposits \$1,000 at the end of each quarterly period for 2 years in an account paying 8% compounded quarterly. After this period, he leaves the money alone with no further deposits for an additional 3 years. Find the final amount in the account at the end of the entire 5 year period.

3. Solve the following system **by substitution** $\begin{cases} 2x - 5y = 16 \\ 7x - 3y = 27 \end{cases}$

4. Solve the following system **by the Gauss-Jordan method**

$$\begin{cases} x - y + z = -4 \\ -2x + y - z = 5 \\ -x - 2y + z = -3 \end{cases}.$$

5. Pretzels cost \$3 per pound, dried fruit \$4 per pound and nuts \$8 per pound. How many pounds of each should be used to produce 140 pounds of trail mix costing \$6 per pound in which there are twice as many pretzels (by weight) as dried fruit?

6. Solve the matrix equation $2A + X = 3B$, where $A = \begin{bmatrix} -1 & 3 \\ 5 & -2 \end{bmatrix}$ and

$$B = \begin{bmatrix} 2 & 1 \\ 0 & -3 \end{bmatrix}.$$