

## HOMEWORK 7 - MATH 111

DUE DATE: Friday, November 14

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Read each problem very carefully before starting to solve it. Each question is worth 1 point. It is necessary to show your work. Correct answers without explanations are worth 0 points.

**GOOD LUCK!!**

1. Find the present value of the future amount \$8,000 compounded quarterly at 4% for 10 years.
2. Find the sum of the first five terms of the geometric sequence with first term  $a = 7$  and common ratio  $r = 3$ .
3. Solve the systems

$$\left\{ \begin{array}{rcl} 3x & + & 8y = -18 \\ -x & + & 3y = -11 \end{array} \right\}, \quad \left\{ \begin{array}{rcl} 5x & - & y = 2 \\ -10x & + & 2y = -3 \end{array} \right\},$$

by the **substitution method**.

4. Solve the system  $\left\{ \begin{array}{rcl} -x & + & 2y - z = -12 \\ 2x & - & y + 3z = 20 \\ x & - & 3y + 2z = 20 \end{array} \right\}$  by the **elimination method**.

5. Solve the system  $\left\{ \begin{array}{rcl} -5x & + & y - z = 12 \\ -10x & + & 3y + z = 11 \\ -7x & - & 2y + 2z = -7 \end{array} \right\}$  by using the **Gauss-Jordan method** (matrix row operations).

6. Solve the system  $\left\{ \begin{array}{rcl} 2x & - & 6y + z = 30 \\ -x & + & y + 2z = 21 \\ x & - & 3y + 3z = 45 \end{array} \right\}$  by using the **Gauss-Jordan method** (matrix row operations).

7. Let  $A = \begin{bmatrix} 2 & -3 \\ 5 & -7 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & -2 \\ 6 & 3 \end{bmatrix}$ . Compute  $A + B$ ,  $A - B$  and  $3A - 2B$ .

8. Let  $A = \begin{bmatrix} -1 & 7 & -5 \\ 2 & -3 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} -3 & -5 & 9 \\ 2 & 11 & -7 \end{bmatrix}$ . Compute  $A - B$  and  $-2A + 5B$ .