

Code _____ NAME: _____ Date: _____

SW1 *Synthetic Division, Remainder/Factor Theorems*

I. MULTIPLE-CHOICE OR CONSTRUCTED RESPONSE. (7 pts) Write on the blank before each number the **CAPITAL LETTER** which corresponds to the correct answer; otherwise, write the answer.

For numbers 1 and 2, determine whether the statement is **TRUE** or **FALSE**.

_____ 1. Remainder Theorem can be used to find the quotient of the division of polynomials.

_____ 2. When a polynomial is divided by x , the remainder equals to the constant term of the polynomial.

For numbers 3 and 4, determine whether the given binomial is a factor of $3x^3 + 10x^2 + x - 6$. Write **YES** or **NO**.

_____ 3. $(x + 3)$

_____ 4. $(x - 1)$

_____ 5. What is the remainder when $x^{2026} - x^{67}$ is divided by $x + 1$?

_____ 6. What is the remainder when $3x^3 + 2x^2 - 5x + 3$ is divided by $(x - 2)$?
A. -39 B. -19 C. -3 D. 25

_____ 7. When the polynomial $x^4 - 3x^3 - 7x^2 + 7x + 2$ is divided by $x + 2$, the quotient is $x^3 + Rx^2 + Nx + 1$. What is the value of $R + N$?
A. -8 B. -2 C. 0 D. 2

II. COMPUTATION. (8 pts) Divide using synthetic division

1. $(x^3 + 4x^2 - 3x - 18) \div (x - 2)$

a) Determine $c =$ _____

Ans:

2. $(3x^3 + 10x^2 - 5) \div (x + 3)$

a) Determine $c =$ _____

Ans: