

Name _____ Date _____

Algebra 2

**Synthetic Substitution, Synthetic Division, Long Division
Study Guide**

_____1. Use **direct substitution** to evaluate $f(x) = 3x^3 - 4x^2 + 6x - 1$ when $x = -2$

_____2. Use **synthetic substitution** to evaluate $f(x) = 3x^3 - 4x^2 + 6x - 1$ when $x = -2$

_____3. Use **synthetic substitution** to evaluate $f(x) = x^4 - 2x^3 + 2$ when $x = -2$

(Hint: Use placeholders)

_____ 4. Use **long division** to divide $(x^2 - 3x + 2) \div (x - 1)$

_____ 5. **Multiple Choice:** What is the result of dividing $x^3 - 9x + 5$ by $x - 3$
when using **synthetic division**. (*Hint: Use a placeholder*)
Show your work.

(A) $x^2 + 3x + 5$

(B) $x^2 + 3x$

(C) $x^2 + 3x + \frac{5}{x-3}$