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Date:

Course: _____

Nyack College

College Algebra

Assessment #1

A. Directions: Add, subtract, or multiply:

$$(1) (x^2 + 4x + 5) + (3x - 5)$$

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

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

$$(4) 9(x^3 - 3x + 4) - 6(1 - x^2)$$

$$(5) (x^2 + 1) - (4x^2 + 5) + (x^2 + x - 2)$$

$$(6) x(x^3 + x^2 + 2)$$

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

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$$(8) (x^3 + x^2 + 2)(x^2 - 4x + 4)$$

$$(9) (x^3 + x^2 + 2)(x^2 - 4x + 4) - (x^5 + x^4 - 2x^3 - 4x + 2)$$

$$(10) (x + 3)(x - 4)(x^3 + x^2 + 2) - (x^3 + x^2 + 2)(x^2 - 4)$$

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B. Directions: Find the quotient and the remainder:

(11) $4x^3 - 3x^2 + x + 1$ divided by $x + 2$

(12) $4x^3 - 3x^2 + x + 1$ divided by x^2

(13) $5x^4 + 3x^2 + x + 1$ divided by $x^2 + 1$

(14) $3x^4 - x^3 + x - 2$ divided by $3x^2 + x + 1$

(15) $x^3 - a^3$ divided by $x - a$

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C. Directions: Factor each expression completely.

(16) $x^2 - 36$

(17) $25 - x^2$

(18) $x^2 - 10x + 25$

(19) $x^2 - 10x + 24$

(20) $4x^2 + 16x + 16$

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$$(21) \quad 4a^2 + 53a + 28$$

$$(22) \quad 9x^2 + 66x + 21$$

$$(23) \quad 16x^2 + 60x + 100$$

$$(24) \quad 3x^3 - 4x^2 + 9x - 16$$

$$(25) \quad 5x^3 - 10x^2 + 3x - 6$$

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D. Directions: Simplify the radical expressions completely.

(26) $\sqrt{64}$

(27) $\sqrt{400}$

(28) $\sqrt{x^6}$

(29) $\sqrt{18}$

(30) $\sqrt{125}$

(31) $\sqrt{72}$

(32) $\sqrt{180}$

(33) $\sqrt{a^3}$

(34) $\sqrt{b^7}$

(35) $\sqrt{49a^8x^{12}}$