

Name _____

Algebra 2 Review Part I
6.1-6.4

1. Rewrite in standard form. Identify the leading coefficient, degree of the polynomial, and the number of terms.

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

b) $2x^3 - 8 + 3x^5 + 6x^4 - 11x$

2. Multiply. Write your answer in standard form.

a) $(a-3)(a^2-5a+2)$

b) $2xy(4y^2 - xy + 3)$

3. Multiply. $(x-5)^3$

4. Divide by using long division.

a) $(-5x^2 + 6x - 10) \div (x + 7)$

b) $(y^4 + 10y^2 + 21) \div (y^2 + 3)$

5. Divide by using synthetic division.

a) $(8x^4 - 6x^2 + 4x + 6) \div (x - \frac{1}{2})$

b) $(7x^2 - 5x + 3) \div (x - 1)$

6. Use synthetic substitution to evaluate the polynomial for the given value.

$P(x) = 5x^2 - 8x + 3$ for $x = 4$

7. Use synthetic division to determine if the given binomial is a factor of $P(x)$.

$P(x) = x^3 - 2x^2 + 7x + 9$; $x - 3$

8. Explain why $15x^{\frac{1}{2}} + 4x$ is not a polynomial.

9. Add or subtract. Write your answer in standard form.

a) $(12x^3 - 5x^2 - 70x + 1) + (-17x^3 + 56x)$

b) $(6x^2 - 18x + 3) - (14x^2 - 12x + 9)$

10. Factor the trinomial. $6x^2 + 21x + 9$