

Name: _____ Class: _____ Date: _____

Algebra 2 CP Worksheet Section 6.5 Practice: WORK ON SEPARATE PAPER

1. Divide using long division: $(3x^3 + 5x^2 - 6x + 2) \div (x - 2)$
2. Divide using long division: $(4x^4 - 7x^2 - 5x + 1) \div (x^2 - x + 1)$
3. Divide using synthetic division: $(2x^3 - 5x^2 + 4) \div (x - 3)$
4. Use Synthetic Division and the Remainder Theorem to evaluate $P(c)$ if $P(x) = \frac{1}{2}x^3 + 5x^2 - 3x - 12$ and $c = -2$.
5. Find the remainder when $P(x) = x^6 + 3x^5 - 2x^4 + x^3 + 8x^2 - 15$ is divided by $x + 3$.
6. If $P(x) = x^3 + 7x^2 + 2x - 40$ and $P(2) = 0$, write $P(x)$ in factored form. Then find the zeros.
7. Given the polynomial $2x^3 + 13x^2 + 5x - 6$ and the factor $x + 6$, find the remaining factors and write the polynomial in factored form. Then find the zeros.
8. If $P(x) = x^3 + 3x^2 + x + 3$ and $P(-3) = 0$, write $P(x)$ in factored form. Then find the zeros.
9. Given the polynomial $6x^3 + 25x^2 + 3x - 4$ and the factor $x + 4$, find the remaining factors and write the polynomial in factored form. Then find the zeros.
10. If $P(x) = x^5 - 7x^4 - x^3 + 7x^2 - 6x + 42$ and $P(7) = 0$, write $P(x)$ in factored form. Then find the zeros.