Algebra 2 S1 Name: _____ Block: _____

Topic: Polynomials Dividing Polynomials

4	In addition a 3.0, demonstrate in-depth inferences & applications that go beyond the learning goal.
3	☐ Solve quadratic equations in one variable by factoring ☐ Determine if a given binomial is a factor of a polynomial; if so, completely factor the polynomial
2	☐ *Recognize or recall specific vocabulary such as: monic, roots, end behavior* ☐ Factoring – showing expressions in different representations ▪ Non-monic ▪ Factor by grouping ☐ Find the remainder using ▪ The Remainder Theorem ▪ Divide polynomials
1	Student performance reflects insufficient progress towards foundational skills and knowledge.

Divide. (Choose 10 problems to complete. Do the rest for more practice).

1. $(x^2 - 7x - 11) \div (x - 8)$ $x+1 - \frac{3}{x-8}$
2. $(x^2 - 4x - 12) \div (x - 6)$ $x+2$
3. $(x^2 + 10x + 18) \div (x + 5)$ $x+5 - \frac{7}{x+5}$
4. $(x^2 - 9x - 10) \div (x + 1)$ $x-10$
5. $(x^2 - 3x - 21) \div (x - 7)$ $x+4 + \frac{7}{x-7}$
6. $(2x^3 + 8x^2 - 3x - 12) \div (x + 4)$ $2x^2 - 3$
7. $(x^2 + 14x + 38) \div (x + 8)$ $x+6 - \frac{10}{x+8}$
8. $(2x^3 - 3x^2 - 19x + 30) \div (x - 3)$ $2x^2 + 3x - 10$
9. $(2x^2 - 17x - 38) \div (2x + 3)$ $x-10 - \frac{8}{2x+3}$
10. $(4x^3 - 8x^2 - 3x + 1) \div (x + \frac{1}{2})$ $4x^2 - 10x + 2$
11. $(x^2 - 74) \div (x - 8)$ $x+8 - \frac{10}{x-8}$
12. $(x^2 + 8x + 12) \div (x + 2)$ $x+6$
13. $(x^3 + 7x^2 + 14x + 3) \div (x + 2)$ $x^2 + 5x + 4 - \frac{5}{x+2}$
14. $(3x^2 - 16x + 15) \div (x - 3)$ $3x - 7 - \frac{6}{x-3}$
15. $(x^3 - 2x^2 - 14x - 5) \div (x + 3)$ $x^2 - 5x + 1 - \frac{8}{x+3}$
16. $(2x^2 - 11x + 5) \div \left(x - \frac{1}{2}\right)$ $2x - 10$
17. $(x^3 - 4x^2 - 30x - 18) \div (x + 3)$ $x^2 - 7x - 9 + \frac{9}{x+3}$
18. $(x^3 + 4x^2 - 6x - 12) \div (x - 2)$ $x^2 + 6x + 6$
19. $(x^3 + 5x^2 - 32x - 7) \div (x - 4)$ $x^2 + 9x + 4 + \frac{9}{x-4}$
20. $(x^3 - 3x^2 + 3x - 9) \div (x - 3)$ $x^2 + 6 + \frac{9}{x-3}$

State whether the binomial $(x + 4)$ is a factor of each of the polynomials. Justify your answer. If it is a factor, factor the polynomial completely.

21. $x^3 + 5x^2 - 2x - 24$

R=0
yes
$x^2 + x - 6$

22. $2x^3 - 4x^2 - 5x + 6$

R=-166
no

23. $x^3 + 4x^2 - 1x - 4$

R=0
yes
$x^2 - 1$