

Algebra 2
WS: Chapter 4 Review

Name _____
Date _____ Block _____

*All work and answers should be done on separate paper.
When necessary, answers should be given as fractions or radicals in simplest form.*

In 1 – 14, find each sum, difference, product or quotient.

1. $(-4x^4 + 3x^2 - 3x) + (-12x^4 - 3x^3 + 5x^2 - 8x + 1)$
2. $(3x^2 - 7x + 4) - (-4x^2 - 12x + 8)$
3. $(3x^5 - 9x^4 - 7x^2 + x) + (-4x^4 - 6x^2 + 2x^5)$
4. $(-3x^3 - 2x^2 + 1) - (-5x^3 + 2x^2 - 4)$
5. $(3x - 7)(2x + 1)$
6. $(x + 3)(x + 4)(x - 1)$
7. $(2x - 3)(x^2 - 3x + 5)$
8. $(x - 7)(3x^2 + 4x - 3)$
9. $(2x + 2)^3$
10. $(3x - 4)^3$
11. $(4x^3 - 7x^2 - x - 10) \div (x^2 - 3)$
12. $(3x^2 - 8x + 20) \div (3x + 2)$
13. $(x^3 + x^2 + 2x + 24) \div (x + 3)$
14. $(4x^3 + 9x^2 - 52x + 15) \div (x + 5)$

In 15 - 20, factor completely.

15. $4k^5 - 100k^3$
16. $3r^4 - 11r^2 - 20$
17. $c^3 - 1000$
18. $9n^6 - 243n^3$
19. $4k^3 - 40k^2 + 10k - 100$
20. $9m^4 - 1$

In 21 – 22, given polynomial $f(x)$ and a factor of $f(x)$, factor $f(x)$ completely.

21. $f(x) = 2x^3 - 3x^2 - 8x - 3; x - 3$
22. $f(x) = 3x^3 - 19x^2 - 22x + 56; x - 7$

In 23 - 24, given polynomial function f and a zero of f , find the other zeros.

23. $f(x) = x^3 - 3x^2 + 4; 2$
24. $f(x) = x^4 + 2x^3 - 13x^2 - 38x - 24; -3$

In 25 - 26, list the possible rational zeros of the function using the rational zeros theorem.

25. $f(x) = x^3 + 7x - 9$
26. $h(x) = -2x^4 - 5x^3 - 3x^2 + 7x + 2$

In 27 - 30, find all the zeros of the function.

27. $g(x) = x^3 - x^2 - x + 1$
28. $h(x) = x^4 - 4x^3 - 9x^2 + 16x + 20$
29. $p(x) = 2x^3 - 42x + 40$
30. $f(x) = 2x^3 - 5x^2 - 2x + 2$