Algebra 2
Chapter 7B Review

Name: _____
Period: _____

Four-Function Calculator!!

Factor.

1. x^2-6x+5
2. x^2-25
3. $4x^2+24x+27$
4. $2x^4-8x^2-x^2+4$
5. $2x^2-15x+7$
6. $4x^3-16x^2$
7. $2x^3+4x^2-30x$
8. $81-16y^4$
9. $5x^2-23x+12$

Solve by factoring.

10. $4x^3-4x^2+7x=7$
11. $x^4-81=0$
12. $3x^2=16x^2-5x$

Divide.

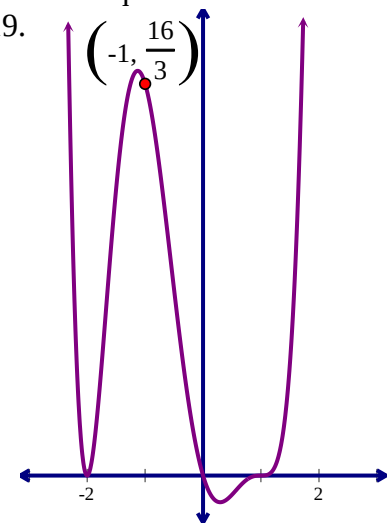
13. $\left(15x^5-5x^4+80x^3+20x^2\right)\div\left(5x^2\right)$
14. $\left(x^3+10x^2+11x-70\right)\div\left(x-2\right)$
15. $\left(2x^3-7x^2+9\right)\div\left(x+1\right)$

Use long division to determine whether the statement is true or false.

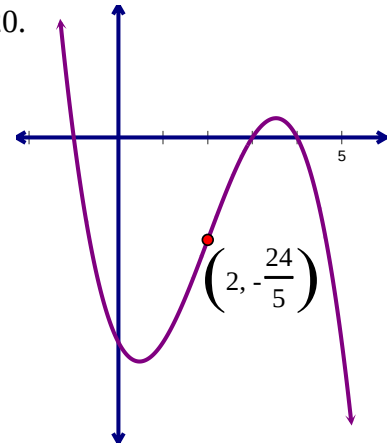
16. $x+4$ is a factor of $3x^3+32x^2+81x+4$
17. -1 is a root of $3x^2-10x-8$
18. 4 is a root of $4x^3+2x^2-15x+7$

Find the equation of the function.

19.



20.



21. A cubic function with roots $x=-2$, $x=7$ and $x=10$ and passes through $(1,-810)$.

22. A seventh degree function with roots $x=\frac{3}{2}$, $x=3$ (double), $x=-1$, $x=-5$ (triple) and passes through $(-2,945)$

Rewrite in standard form.

23. $f(x)=-2(x-1)(x+4)(x-5)$
24. $g(x)=\frac{1}{2}(x-4)(x+4)(x-6)$
25. $h(x)=(3x-2)(2x+7)(x-1)$
26. $j(x)=(5x-1)^2(x+3)$

Find the degree, the leading coefficient and the root. Then, sketch the end behavior.

27. $a(x) = x^3(2x-1)(-x+4)(3x-5)$

28. $b(x) = -(x-4)^4(x+10)^2(x-5)$

29. $c(x) = 8x^{10} - x^4 + 14x^{12} + 56$

30. $d(x) = -3x^7 + 15x^9 - 20x^{10} + 4x^{11}$

Sketch the function.

31. $f(x) = x^2(x-3)^7(x+2)^5(x+3)^4$

32. $g(x) = -3x(x+5)^2(x-4)^{12}$

Simplify.

33. $\frac{7}{2} + \frac{9}{8} \cdot 4$

34. $2 - \frac{5}{4} \div 20$

35. $\frac{3}{5} \cdot \frac{50}{9} + \frac{28}{12} \div 7$

Expand.

36. $(x-3)^5$

37. $(6x+1)^4$

38. $(2x+5y)^3$