Honors Math II Name Key

Ch. 2 day 1 WS: Polynomials Period_____ Date_____

Decide whether the function is a polynomial function. If it is, write the function in standard form and state the degree, type, and leading coefficient.

1. $f(x) = 5x + 2$ Polynomial

D: 1 L.C.: 5

Type: Linear

2. $f(x) = 2^x$ Not Polynomial

3. $g(x) = 15 + 3x^2 + x$ Polynomial

$g(x) = 3x^2 + x + 15$

D: 2 Type: Quadratic L.C: 3

4. $h(x) = \frac{1}{2}x^4 - x^2 + 3x^3$ Polynomial

$h(x) = \frac{1}{2}x^4 + 3x^3 - x^2$

D: 4 Type: Quartic L.C.: $\frac{1}{2}$

5. $h(x) = x^4 - x^{-3}$

Not polynomial

6. $f(x) = -\frac{3}{4}x^3 + 2x^4 + 7$

$f(x) = 2x^4 - \frac{3}{4}x^3 + 7$

D: 4 Type: Quartic L.C: 2

Find the sum or difference or fill in the $\boxed{}$ with the missing information.

7. $(2y^2 + \boxed{-5}\,y + 1) + (y^2 - y - 4) = \boxed{3}\,y^2 - 6y - 3$

8. $(12x^2 + 8x - 3) \mp (11x^2 + x \mp 5) = x^2 + 9x - 8$

9. $(6m^3 + \boxed{-5}) - (\boxed{1}\,m^2 + 4m^4 - 9m - 2) = -4m^4 + \boxed{6}\,m^3 - m^2 + \boxed{9}\,m - 3$

10. $(5x^4 - 2x^3 + 9) - (\boxed{-2}\,x^4 + 8x^2 - \boxed{1}\,x + 2) = 7x^4 - 2x^3 - 8x^2 + x + \boxed{7}$

11. $(7n - 3n^3) + (16 - 8n^3 + 5n^2 - n) = -11n^3 + 5n^2 + 6n + 16$

12. $(-4x^4 + \boxed{6}\,x - 9) + (\boxed{11} - x^3 + 3x^2 + x^4) = \boxed{-3}\,x^4 - x^3 + 3x^2 + 6x + 2$

13. $(10y^4 - 2y^2 + 6y^3 - 7) - (9 - y + 2y^4) = 8y^4 + 6y^3 - 2y^2 + y - 16$

14. $(4x^5 + 3x^4 - 5x + 1) - (x^3 + 2x^4 - x^5 + 1) = 5x^5 + x^4 - x^3 - 5x$

show work for full credit

Find the product.

15. $2x^3(5x-1)$

$10x^4 - 2x^3$

16. $(w-8)(w+8)$

$w^2 - 64$

17. $(2c+4)(c+10)$

$2c^2 + 24c + 40$

18. $(3x+9)(2x-5)$

$6x^2 + 3x - 45$

19. $(y-1)(y^2+6y-2)$

$y^3 + 5y^2 - 8y + 2$

20. $(2n+5)(2n^2-n-7)$

$4n^3 + 8n^2 - 19n - 35$

21. $(x-3)^3$

$x^3 - 9x^2 + 27x - 27$

22. $(4m+1)^2$

$16m^2 + 8m + 1$

23. $3x^r(5x^{2r}+4x^{3r-1})$

$15x^{3r} + 12x^{4r-1}$

24. $2x(x-1)^2$

$2x^3 - 4x^2 + 2x$

25. $(6x^m-5)(2x^{2m}-3)$

$12x^{3m} - 10x^{2m} - 18x^m + 15$

26. $-5x(x-1)-(2x+5)(x-3)$

$-7x^2 + 6x + 15$

27. Find two polynomials that the product has degree 6 and the sum has degree 3.

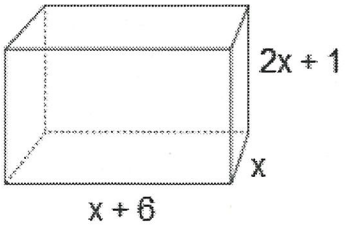
x^3 & x^3

28. Find two polynomials that the product has degree 6 and the sum has degree 4.

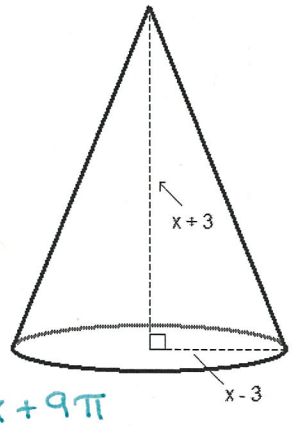
x^4 & x^2

Write the volume of the figure as a polynomial in standard form.

29. $V = lwh$ $\quad 2x^3 + 13x^2 + 6x$



30. $V = \frac{1}{3}\pi r^2 h$



$\frac{\pi}{3}x^3 - \pi x^2 - 3\pi x + 9\pi$