Name
Date
Course

Polynomials (Part I): A Review of Polynomials Homework

Determine if the expressions below are polynomials. If not, circle the term(s) that disqualify each expression.

(1) $3x+4$

(2) $8x^5-\pi^x+16$

(3) $-10+x^{-7}+4x$

(4) $x^5+3x^4-8x^3+x^2-2$

(5) $721.3x^4-\frac{32}{3}x^8+x$

(6) $\sqrt[3]{x^5}-8x^2+7x-9$

(7) $2x^2+\frac{1}{x}-4x-13$

(8) $43x^3+88x^2+\frac{x}{6}+22$

(9) $8x^0+2x^5-\frac{1}{8}x$

(10) $37x^{19}-5^{x-3}+\pi x^4$

Simplify the following polynomials, write in descending order of powers, and state the degree.

(11) $5x^6+2x^2-3x^6+6x-7x^3+2$

(12) $-5x-2x^3+10+3x^2-2x-9+8x^3-2x+5x+10x^2$

(13) $2+x^2-8x^2+3x^2+6x+4-8x+x^2-5x^5$

(14) $-x^3+2x-4x+8-3+2x-1$

Add or subtract the following polynomials.

(15) $(2x^3-3x^2+7x+5)+(5x^2-6x+2)$

(16) $(12x^3-6x^2+7x+5)-(5x^4-x^3+2x^2-2x-1)$

(17) $(x^3-3x^2+7x+5)+(9x+2)$

(18) $(-x^3+3x)-(-8x^3+9x+2)$

(19) $(4x-6)+(-3x^2+9x-1)$

(20) $(7x^3+4x^2-2x+5)-(3x^2-4x+8)$

(21) $(-8x^3+x^2)+(-4x^3-8x^2-7x+13)$

Multiply.

(22) $4x^3(2x^2-3x+9)$

(23) $y^5(2y^3+3y^2-4y+6)$

(24) $-z^8(2z^3+6z^2-z+6)$

(25) $3x(4x^2-2x+10)$

(26) $-10x^3(7x^3-7x^2+2)$

(27) $(x+9)(x+8)$

(28) $(2x-3)(2x-5)$

(29) $(x+5)(9x^2+x-3)$

(30) $(x^2+4)(-3x^2+4x+1)$

Divide.

(31) $\dfrac{20x^5-35x^4+10x^3-30x^2}{5x}$

(32) $\dfrac{64x^3-40x^2}{8x^2}$

(33) $\dfrac{100x^9+50x^5-80x^3+20x^2}{-10x}$

(34) $\dfrac{15x^2+3x+9}{3}$

Perform the following operations.

(35) $774 \div 6$

(36) $3,696 \div 7$

(37) $949 \div 4$

(38) $2,897 \div 5$

Answers

1. $3x+4$ Yes
2. $8x^5-\pi^x+16$ No
3. $-10+x^{-7}+4x$ No
4. $x^5+3x^4-8x^3+x^2-2$ Yes
5. $721.3x^4-\frac{32}{3}x^8+x$ Yes
6. $\sqrt[3]{x^5}-8x^2+7x-9$ No
7. $2x^2+\frac{1}{x}-4x-13$ No
8. $43x^3+88x^2+\frac{x}{6}+22$ Yes
9. $8x^0+2x^5-\frac{1}{8}x$ Yes
10. $37x^{19}-5^{x-3}+\pi x^4$ No
11. $2x^6-5x^2+6x+2$, $D=6$
12. $6x^3+13x^2-4x+1$, $D=3$
13. $-5x^5-3x^2-2x+6$, $D=5$
14. $-x^3+4$, $D=3$
15. $2x^3+2x^2+x+7$
16. $-5x^4+13x^3-8x^2+9x+6$
17. $x^3-3x^2+16x+7$
18. $7x^3-6x-2$
19. $-3x^2+13x-7$
20. $7x^3+x^2+2x-3$
21. $-12x^3-7x^2-7x+13$
22. $8x^5-12x^4+36x^3$
23. $2y^8+3y^7-4y^6+6y^5$
24. $-2z^{11}-6z^{10}+z^9-6z^8$
25. $12x^3-6x^2+30x$
26. $-70x^6+70x^5-20x^3$
27. $x^2+17x+72$
28. $4x^2-16x+15$
29. $9x^3+46x^2+2x-15$
30. $-3x^4+4x^3-11x^2+16x+4$
31. $4x^4-7x^3+2x^2-6x$
32. $8x-5$
33. $-10x^8-5x^4+8x^2-2x$
34. $5x^2+x+3$
35. 129
36. 528
37. $237+\frac{1}{4}$
38. $579+\frac{2}{5}$