6-5 Practice

Solving Polynomial Equations

Factor completely. If the polynomial is not factorable, write *prime*.

1. $15a^2b - 10ab^2$

2. $3st^2 - 9s^3t + 6s^2t^2$

3. $3x^3y^2 - 2x^2y + 5xy$

4. $2x^3y - x^2y + 5xy^2 + xy^3$

5. $21 - 7t + 3r - rt$

6. $x^2 - xy + 2x - 2y$

7. $y^2 + 20y + 96$

8. $4ab + 2a + 6b + 3$

9. $6n^2 - 11n - 2$

10. $6x^2 + 7x - 3$

11. $x^2 - 8x - 8$

12. $6p^2 - 17p - 45$

Write each expression in quadratic form, if possible.

13. $10b^4 + 3b^2 - 11$

14. $-5x^8 + x^2 + 6$

15. $28d^6 + 25d^3$

16. $4s^8 + 4s^4 + 7$

17. $500x^4 - x^2$

18. $8b^5 - 8b^3 - 1$

Solve each equation.

19. $y^4 - 7y^3 - 18y^2 = 0$

20. $s^5 + 4s^4 - 32s^3 = 0$

21. $m^4 - 625 = 0$

22. $n^4 - 49n^2 = 0$

23. $x^4 - 50x^2 + 49 = 0$

24. $t^4 - 21t^2 + 80 = 0$

25. PHYSICS A proton in a magnetic field follows a path on a coordinate grid modeled by the function $f(x) = x^4 - 2x^2 - 15$. What are the x-coordinates of the points on the grid where the proton crosses the x-axis?

26. SURVEYING Vista county is setting aside a large parcel of land to preserve it as open space. The county has hired Meghan's surveying firm to survey the parcel, which is in the shape of a right triangle. The longer leg of the triangle measures 5 miles less than the square of the shorter leg, and the hypotenuse of the triangle measures 13 miles less than twice the square of the shorter leg. The length of each boundary is a whole number. Find the length of each boundary.