

Algebra Chapter 12 Test

1. Write the prime factorization of 1800 in standard form. _____
2. Determine if 221 is prime or composite. _____
3. Determine if 331 is prime or composite. _____

Factor completely.

4. $4n^2 + 8n^3 =$ _____
5. $15n^4 + 25n^2 =$ _____
6. $24a^4b^2 + 18a^3b^5 =$ _____
7. $-2a^3b^2c^4 + 8a^4bc^3 =$ _____
8. $6a^3b^5 + 12a^2b^4c^3 + 15a^4b^2c =$ _____

Tell if the given number is rational or irrational.

- | | |
|--------------------------|--------------------------------|
| 9. π _____ | 10. $\sqrt{\frac{4}{9}}$ _____ |
| 11. $-\frac{2}{7}$ _____ | 12. $\sqrt{35}$ _____ |
| 13. $\sqrt[3]{23}$ _____ | 14. $2\sqrt{8}$ _____ |

15. Solve $n(n + 1)(n - 3) = 0$

Factor into the product of two binomials.

16. $x^2 + 8x + 12$ _____

17. $n^2 - 5n - 6$ _____

18. $y^2 - 7y + 10$ _____

19. $n^2 - 25$ _____

20. $b^2 + 8b - 20$ _____

21. $2n^2 + 11n + 15$ _____

22. $4n^2 + 8n + 3$ _____

23. $10n^2 + 23n - 5$ _____

24. $9y^2 - 25$ _____

Solve by factoring.

25. $n^2 - 4n + 3 = 0$

26. $b^2 - 144 = 0$

27. $b^3 - 3b^2 - 10b = 0$

28. $a^2 = 8a - 12$

Give the value of x. No calculator. Think!

29. $2^{10} = 4^x$ $x =$ _____

30. $8^3 = 2^x$ $x =$ _____

31. $32^3 = 2^x$ $x =$ _____

Simplify the fraction.

32. $\frac{4n+8}{2} =$ _____

33. $\frac{10n^4 - 15n^2}{5n^2} =$ _____

34. Solve for n: $4n(2n + 1)(3n - 1) = 0$

35. The area of a rug is 192 ft^2 . The length is 4 feet longer than the width. Find the dimensions of the rug.

36. The area of a room is 96 ft^2 . Its perimeter is 40 feet. What are the dimensions of the room?