

Powers Review

Factor Trees & Prime Factorization

Create a Factor Tree for Each Number

Write the Prime Factorization in Exponential Form

MILD

1. 24

2. 60

3. 90

MEDIUM

4. 144

5. 360

6. 840

SPICY

7. 1260

8. 2772

9. 5040

Perfect Squares & Perfect Cubes

Write Each Number in Prime Factorized Form

Determine Whether It Is a Perfect Square, Perfect Cube, Both, or Neither

MILD

10. 64

11. 81

12. 125

MEDIUM

13. 216

14. 576

15. 729

SPICY

16. 1296

17. 3375

18. 46656

Square Roots

A perfect square can be written in the form $n = a^2$
and therefore $\sqrt{a^2} = a$

Evaluate or Simplify Each Square Root

MILD

19. $\sqrt{144}$

20. $\sqrt{400}$

21. $\sqrt{576}$

MEDIUM

22. $\sqrt{288}$

23. $\sqrt{450}$

24. $\sqrt{1000}$

SPICY

25. $\sqrt{1152}$

26. $\sqrt{2645}$

27. $\sqrt{10571}$

Cube Roots

A perfect cube can be written in the form $n = a^3$
and therefore $\sqrt[3]{a^3} = a$

Evaluate or Simplify Each Cube Root

MILD

28. $\sqrt[3]{27}$

29. $\sqrt[3]{216}$

30. $\sqrt[3]{512}$

MEDIUM

31. $\sqrt[3]{56}$

32. $\sqrt[3]{135}$

33. $\sqrt[3]{648}$

SPICY

34. $\sqrt[3]{1512}$

35. $\sqrt[3]{11000}$

36. $\sqrt[3]{251559}$

37. A square garden has an area of 196 m^2 . Determine the length of one side.

38. A square floor has an area of 625 m^2 . Determine the length of one side.

39. A square display is made from **784 identical square tiles**. Determine whether the tiles can be arranged into one large square. If they can, determine the number of tiles along each side.

40. A cube-shaped display is made from **1728 identical cubes**. Determine whether the cubes can be arranged into one larger cube. If they can, determine the number of cubes along each edge.

41. A cube-shaped container has a volume of 343 cm^3 . Determine the length of one edge.

42. A cube-shaped block has a volume of 1331 cm^3 . Determine the length of one edge.