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Date:



مدرسة الاتحاد الوطنية الخاصة - العين
Al Ittihad National Private School - Al Ain

Title: Algebra 6.2 Properties of Rational Exponents and Radicals

Copy and solve on your notebook

7. $\left(49^{\frac{1}{2}}\right)^{\frac{3}{5}}$

8. $\frac{4^{\frac{3}{4}}}{4^{\frac{1}{4}}}$

9. $\left(\frac{27}{125}\right)^{\frac{4}{3}}$

10. $16^{\frac{7}{4}} \cdot 16^{-\frac{1}{2}}$

11. $(36 \cdot 64)^{\frac{3}{2}}$

12. $\left(\frac{9}{25}\right)^{\frac{5}{2}}$

13. $\frac{81^{\frac{5}{6}}}{81^{\frac{1}{3}}}$

14. $\left(\frac{64}{125}\right)^{\frac{4}{3}}$

15. $64^{\frac{3}{4}} \cdot 64^{-\frac{3}{2}}$

16. $\left(8^{\frac{1}{2}}\right)^{\frac{2}{3}}$

17. $\frac{3^{\frac{9}{2}}}{3^{\frac{3}{2}}}$

18. $\left(\frac{16}{81}\right)^{\frac{3}{2}}$

19. $25^{\frac{3}{2}} \cdot 25^{\frac{1}{4}}$

20. $\left(12^{\frac{4}{3}}\right)^{\frac{5}{2}}$

21. $(5 \cdot 20)^{\frac{3}{2}}$

22. $8^{\frac{5}{6}} \cdot 8^{\frac{2}{5}}$

23. $(16 \cdot 40)^{\frac{3}{8}}$

24. $(3^4)^{\frac{1}{3}}$

25. $\frac{32^{\frac{19}{20}}}{32^{\frac{3}{4}}}$

26. $(49 \cdot 9)^{-\frac{1}{2}}$

27. $\left(\frac{625}{16}\right)^{\frac{3}{4}}$

Simplify. Justify each step.

28. $y^{\frac{2}{5}} \left(x^{\frac{1}{2}}y\right)^{\frac{4}{5}}$

29. $\frac{4a^{\frac{1}{2}}}{4^{\frac{3}{2}}a^{\frac{3}{4}}}$

30. $\frac{81^{\frac{3}{4}}27^{\frac{1}{3}}x^{\frac{6}{5}}}{x^{\frac{1}{5}}}$

31. $\left(x^{\frac{7}{4}}x^{-\frac{3}{4}}y^{\frac{1}{2}}\right)^{\frac{5}{2}}$

32. $\left(49m^{-\frac{4}{3}}\right)^{\frac{3}{2}}$

33. $\left(\frac{16^{\frac{1}{4}}}{16^{\frac{3}{4}}}\right)^{\frac{5}{2}}$

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34. $(64a^{\frac{4}{5}})^{\frac{5}{6}}$

35. $\frac{(16y)^{\frac{7}{8}}}{16^{\frac{3}{8}}y^{\frac{1}{2}}}$

36. $(216 \cdot 8t^{\frac{7}{2}})^{\frac{2}{3}}$

37. $\left(\frac{a^{\frac{1}{2}}b^{\frac{11}{3}}}{b^{\frac{5}{3}}c^{\frac{2}{3}}}\right)^{\frac{7}{4}}$

38. $\frac{64^{\frac{8}{3}} \cdot 64^{\frac{1}{6}}}{64^2}$

39. $\left[\frac{(81r)^{\frac{3}{4}}}{(9r)^{\frac{1}{2}}}\right]^{\frac{3}{2}}$

40. $\frac{81^{\frac{7}{4}}(uv)^{\frac{1}{2}}}{81u^{\frac{2}{3}}v^{\frac{3}{5}}}$

41. $(36x^{\frac{4}{3}})^{\frac{1}{2}}(125x^{\frac{1}{2}})^{\frac{2}{3}}$

42. $(m^{\frac{2}{5}}n^{\frac{1}{4}})^2(m^2n^{\frac{3}{4}})^{\frac{3}{2}}$

43. $\frac{16^{\frac{3}{4}}(mn)^{\frac{5}{3}}}{16^{\frac{1}{2}}mn^{\frac{2}{3}}}$

44. $\left(\frac{125a^{\frac{4}{3}}b^{\frac{5}{6}}}{5a^{\frac{2}{3}}b^{\frac{1}{2}}}\right)^{\frac{3}{2}}$

45. $(27x^{\frac{3}{4}})^{\frac{2}{3}}(4x^{\frac{4}{5}})^{\frac{5}{2}}$