

Name: _____ Date: _____

1. Simplify: $a^{1/3} a^{8/3}$

2. Simplify: $a^{1/3} a^{14/3}$

3. Simplify: $x^{-7/8} \cdot x^{8/9}$

4. Simplify: $x^{-4/5} \cdot x^{5/6}$

5. Simplify: $a^{2/3} \cdot a^{9/10} \cdot a^{-4/5}$

6. Simplify: $a^{8/5} \cdot a^{1/2} \cdot a^{-9/10}$

7. Simplify: $\frac{a^{1/2}}{a^{13/2}}$

8. Simplify: $\frac{a^{16/3}}{a^{19/3}}$

9. Simplify: $\frac{a^{-1/2}}{a^{3/8}}$

10. Simplify: $\frac{a^{-3/2}}{a^{4/3}}$

11. Simplify: $\frac{a^{-7/8}}{a^{-1/4}}$

12. Simplify: $\frac{a^{-1/2}}{a^{-3/8}}$

13. Simplify: $(x^{-6/5})^{30}$

14. Simplify: $(x^{-5/8})^{40}$

15. Simplify: $(x^{-3/8})^{-7/8}$

16. Simplify: $(x^{-1/7})^{-3/2}$

17. Simplify: $(x^{-1/2} \cdot x^{3/5})^{-4}$

18. Simplify: $(x^{-1/4} \cdot x^{1/2})^{-3}$

19. Simplify: $(x^{-1/2} \cdot x^{3/5})^{-4/3}$

20. Simplify: $(x^{-1/5} \cdot x^{1/2})^{-5/2}$

21. Simplify: $(x^5 y^7)^{2/5}$

22. Simplify: $(x^7 y^4)^{5/7}$

23. Simplify: $(x^{5/4} y^{1/4} z^{5/3})^{12/5}$

24. Simplify: $(x^{3/2} y^{5/2} z^{3/4})^{8/3}$

25. Simplify: $(x^{-1/5}y^{1/4})^{-5/7}$

26. Simplify: $(x^{-1/2}y^{5/4})^{-5/8}$

27. Simplify: $a^n \cdot a^{-4n}$

28. Simplify: $a^{5n} \cdot a^{-8n}$

29. Simplify: $\left(\frac{b^{-7/8}}{a^{-1/4}}\right)^{16}$

30. Simplify: $\left(\frac{b^{-5/6}}{a^{-1/3}}\right)^{12}$

31. Simplify: $\frac{b^{1/9} \cdot b^{-1/6}}{b^{1/18}}$

32. Simplify: $\frac{b^{1/4} \cdot b^{-3/8}}{b^{1/8}}$

33. Simplify: $\left(\frac{b^{4/7} \cdot b^{-1/2}}{b^{-2/7}}\right)^{-5/7}$

34. Simplify: $\left(\frac{b^{4/5} \cdot b^{-1/10}}{b^{-7/5}}\right)^{-4/5}$

35. Simplify: $\left(\frac{a^{2/7} \cdot a^{-7/8}}{a^{5/7}}\right)^7$

36. Simplify: $\left(\frac{a^{8/7} \cdot a^{-1/2}}{a^{9/7}}\right)^7$

37. Simplify: $(49m^{-6}n^{12})^{-1/2}(mn^{1/2})$

38. Simplify: $(16m^{-2}n^4)^{-1/2}(mn^{1/2})$

39. Simplify: $\left(x^4y^{\frac{1}{4}}\right)^{-4}(x^{-64}y^4)^{1/16}$

40. Simplify: $\left(x^4y^{\frac{1}{2}}\right)^{-2}(x^{-16}y^2)^{1/8}$

41. Simplify: $\left(\frac{x^{7/8}y^{-15/16}}{y^{8/9}}\right)^{-72}$

42. Simplify: $\left(\frac{x^{7/8}y^{-15/16}}{y^{8/9}}\right)^{-72}$

43. Simplify: $\left(\frac{4c^{5/3}}{a^{-1/10}b^{5/6}}\right)^{-3/2}$

44. Simplify: $\left(\frac{4c^{5/3}}{a^{-1/10}b^{5/6}}\right)^{-3/2}$

45. Simplify: $\left(\frac{9c^{5/3}}{a^{-1/12}b^{5/6}}\right)^{-3/2}$

Answer Key

1. a^3
2. a^5
3. $x^{1/72}$
4. $x^{1/30}$
5. $a^{23/30}$
6. $a^{6/5}$
7. $\frac{1}{a^6}$
8. $\frac{1}{a}$
9. $\frac{1}{a^{7/8}}$
10. $\frac{1}{a^{17/6}}$
11. $\frac{1}{a^{5/8}}$
12. $\frac{1}{a^{1/8}}$
13. $\frac{1}{x^{36}}$
14. $\frac{1}{x^{25}}$
15. $x^{21/64}$
16. $x^{3/14}$
17. $\frac{1}{x^{2/5}}$
18. $\frac{1}{x^{3/4}}$
19. $\frac{1}{x^{2/15}}$
20. $\frac{1}{x^{3/4}}$
21. $x^2 y^{14/5}$
22. $x^5 y^{20/7}$
23. $x^3 y^{3/5} z^4$
24. $x^4 y^{20/3} z^2$
25. $\frac{x^{1/7}}{y^{5/28}}$

26. $\frac{x^{5/16}}{y^{25/32}}$

27. $\frac{1}{a^{3n}}$

28. $\frac{1}{a^{3n}}$

29. $\frac{a^4}{b^{14}}$

30. $\frac{a^4}{b^{10}}$

31. $\frac{1}{b^{1/9}}$

32. $\frac{1}{b^{1/4}}$

33. $\frac{1}{b^{25/98}}$

34. $\frac{1}{b^{42/25}}$

35. $\frac{1}{a^{73/8}}$

36. $\frac{1}{a^{9/2}}$

37. $\frac{m^4}{7n^{11/2}}$

38. $\frac{m^2}{4n^{3/2}}$

39. $\frac{y^{5/4}}{x^{20}}$

40. $\frac{y^{5/4}}{x^{10}}$

41. None of the above

42. None of the above

43. $\frac{b^{5/4}}{8a^{3/20}c^{5/2}}$

44. $\frac{b^{5/4}}{8a^{3/20}c^{5/2}}$

45. $\frac{b^{5/4}}{27a^{1/8}c^{5/2}}$