

Simplifying Radicals

Simplify each of the following:

1. $\sqrt{3^2}$

2. $\sqrt{5^4}$

3. $\sqrt{7^2}$

4. $\sqrt{x^6}$

5. $\sqrt{y^{12}}$

6. $\sqrt{3^5}$

7. $\sqrt{7^9}$

8. $\sqrt{13^3}$

9. $\sqrt{17^9}$

10. $\sqrt{2^3 \cdot 3^4}$

11. $\sqrt{3^5 \cdot 7^2 \cdot 13}$

12. $\sqrt{5^4 \cdot 7 \cdot 17}$

13. $\sqrt{x^3}$

14. $\sqrt{y^6}$

15. $\sqrt{z^{11}}$

16. $\sqrt{x^2 y^6}$

17. $\sqrt{x^4 y^9}$

18. $\sqrt{x^6 y^8}$

19. $\sqrt{x^5 y^7 z^4}$

20. $\sqrt{2^4 \cdot 5^3 \cdot x^2 y^5}$

21. $\sqrt{7^3 \cdot 19^2 \cdot x^8 \cdot y^4 \cdot z^5}$

22. $\sqrt{(x+1)^2}$

23. $\sqrt{(x+5)^2}$

24. $\sqrt{(x-3)^2}$

25. $\sqrt{(x-4)^4}$

26. $\sqrt{(3x-7)^2}$

27. $\sqrt{(x^2 + 5x - 3)^2}$

28. $\sqrt{\frac{5^6}{5^4}}$

29. $\sqrt{\frac{2^7}{2^4}}$

30. $\sqrt{\frac{x^8}{x^4}}$

31. $\sqrt{\frac{x^4 y^9}{x^2 y^7}}$

32. $\sqrt{\frac{x^2 y^7 z^{11}}{x^2 y^3 z^5}}$

33. $\sqrt{\frac{3^5 x^9 y^{15}}{3x^7 y^{12}}}$

Extension:

1. $\sqrt[3]{3^5 x^4}$

2. $\sqrt[4]{x^6 y^8}$

3. $\sqrt[3]{5^5 x^4 y^9}$

4. $\sqrt[5]{x^{11} y^{17}}$

5. $\sqrt[4]{5^7 x^3 y^6}$

6. $\sqrt[4]{2^9 \cdot 3^{11} \cdot x^{14} y^{10}}$