

1. Simplifica al máximo:

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|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. $\sqrt{75}$ | 2. $\sqrt{40}$ | 3. $\sqrt{27}$ | 4. $\sqrt{810}$ | 5. $\sqrt{108}$ | 6. $\sqrt{864}$ | 7. $\sqrt{675}$ | 8. $\sqrt{432}$ |
| 9. $\sqrt{600}$ | 10. $\sqrt{972}$ | 11. $\sqrt{480}$ | 12. $\sqrt{243}$ | 13. $\sqrt{750}$ | 14. $\sqrt{800}$ | 15. $\sqrt{500}$ | 16. $\sqrt{360}$ |
| 17. $\sqrt{720}$ | 18. $\sqrt{250}$ | 19. $\sqrt{270}$ | 20. $\sqrt{486}$ | 21. $\sqrt{8a}$ | 22. $\sqrt{12a}$ | 23. $\sqrt{24a}$ | 24. $\sqrt{75a}$ |
| 25. $\sqrt{54a}$ | 26. $\sqrt{20a}$ | 27. $\sqrt{72a}$ | 28. $\sqrt{18a^3}$ | 29. $\sqrt{45a^3}$ | 30. $\sqrt{45a^2}$ | 31. $\sqrt{50a^5}$ | 32. $\sqrt{90a^4}$ |
| 33. $\sqrt{54a^5}$ | 34. $\sqrt{72a^3}$ | 35. $\sqrt{50a^3}$ | 36. $\sqrt{54a^2}$ | 37. $\sqrt{75a^5}$ | 38. $\sqrt{72a^4}$ | 39. $\sqrt{90a^3}$ | 40. $\sqrt{50a^2}$ |
| 41. $\sqrt{27ab^2}$ | 42. $\sqrt{45a^5b}$ | 43. $\sqrt{50a^3b}$ | 44. $\sqrt{54ab^5}$ | 45. $\sqrt{27ab^5}$ | 46. $\sqrt{75a^4b}$ | 47. $\sqrt{45ab^4}$ | 48. $\sqrt{27a^2b}$ |
| 49. $\sqrt{40a^5b^5}$ | 50. $\sqrt{40a^5b^4}$ | 51. $\sqrt{27a^4b^3}$ | 52. $\sqrt{54a^3b^5}$ | 53. $\sqrt{54a^2b^5}$ | 54. $\sqrt{75a^3b^5}$ | 55. $\sqrt{27a^2b^3}$ | 56. $\sqrt{24a^5b^3}$ |
| 57. $\sqrt{90a^2b^2}$ | 58. $\sqrt{75a^5b^3}$ | 59. $\sqrt{20a^2b^4}$ | 60. $\sqrt{90a^5b^3}$ | 61. $\sqrt{75a^4b^2}$ | 62. $\sqrt{24a^5b^4}$ | 63. $\sqrt{54a^2b^4}$ | 64. $\sqrt{27a^3b^2}$ |

2. Realiza la operación:

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|-----------------------------|------------------------------|-------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--------------------------------------|
| 1. $\sqrt{6}\sqrt{6}$ | 2. $\sqrt{2}\sqrt{6}$ | 3. $\sqrt{3}\sqrt{6}$ | 4. $\sqrt{2}\sqrt{2}$ | 5. $\sqrt{2}\sqrt{3}$ | 6. $\sqrt[3]{9}\sqrt[3]{3}$ | 7. $\sqrt[3]{3}\sqrt[3]{4}$ |
| 8. $\sqrt[3]{2}\sqrt[3]{4}$ | 9. $\sqrt[3]{18}\sqrt[3]{6}$ | 10. $\sqrt[3]{6}\sqrt[3]{12}$ | 11. $\sqrt[3]{18}\sqrt[3]{18}$ | 12. $\sqrt[3]{9}\sqrt[3]{9}$ | 13. $\sqrt{a}\sqrt{a}$ | 14. $\sqrt{2}\sqrt{a}$ |
| 15. $\sqrt{a}\sqrt{3a}$ | 16. $\sqrt{2a}\sqrt{a}$ | 17. $\sqrt[3]{2}\sqrt[3]{4a}$ | 18. $\sqrt[3]{a^2}\sqrt[3]{4a}$ | 19. $\sqrt[3]{9a^2}\sqrt[3]{3}$ | 20. $\sqrt[3]{4a}\sqrt[3]{4a^2}$ | 21. $\sqrt{a}\sqrt{ab}$ |
| 22. $\sqrt{3}\sqrt{3ab}$ | 23. $\sqrt{2ab}\sqrt{b}$ | 24. $\sqrt{2ab}\sqrt{2}$ | 25. $\sqrt[3]{4a^2}\sqrt[3]{4ab}$ | 26. $\sqrt[3]{2ab^2}\sqrt[3]{ab}$ | 27. $\sqrt[3]{9}\sqrt[3]{9a^2b^2}$ | 28. $\sqrt[3]{a^2b^2}\sqrt[3]{3a^2}$ |

3. Realiza la operación:

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|--------------------------------|--------------------------------|--------------------------------|------------------------------------|---------------------------------|----------------------------------|------------------------------------|
| 1. $\sqrt{2}\sqrt[3]{2}$ | 2. $\sqrt{3}\sqrt[3]{9}$ | 3. $\sqrt{2}\sqrt[6]{2}$ | 4. $\sqrt{2}\sqrt[6]{6}$ | 5. $\sqrt{2}\sqrt[3]{3}$ | 6. $\sqrt[3]{2}\sqrt[6]{6}$ | 7. $\sqrt{2}\sqrt[6]{32}$ |
| 8. $\sqrt[3]{4}\sqrt[6]{32}$ | 9. $\sqrt[3]{6}\sqrt[6]{96}$ | 10. $\sqrt{a}\sqrt[3]{4}$ | 11. $\sqrt{2}\sqrt[6]{a}$ | 12. $\sqrt{a}\sqrt[6]{a^5}$ | 13. $\sqrt{3}\sqrt[3]{a^2}$ | 14. $\sqrt{3a}\sqrt[3]{a}$ |
| 15. $\sqrt[3]{a}\sqrt[6]{a^5}$ | 16. $\sqrt{2}\sqrt[3]{4a}$ | 17. $\sqrt[6]{a}\sqrt[3]{2a}$ | 18. $\sqrt{a}\sqrt[3]{2a^2}$ | 19. $\sqrt[3]{3a}\sqrt[6]{3a}$ | 20. $\sqrt{3}\sqrt[3]{ab^2}$ | 21. $\sqrt[6]{2b^5}\sqrt[3]{2b}$ |
| 22. $\sqrt{3a}\sqrt[3]{a^2b}$ | 23. $\sqrt{ab}\sqrt[3]{a^2b}$ | 24. $\sqrt{2a}\sqrt[6]{ab^5}$ | 25. $\sqrt{3b}\sqrt[6]{ab^5}$ | 26. $\sqrt{b}\sqrt[3]{9ab^2}$ | 27. $\sqrt[3]{4a^2b}\sqrt[6]{b}$ | 28. $\sqrt{3a}\sqrt[6]{3a^5b}$ |
| 29. $\sqrt{2ab}\sqrt[3]{ab^2}$ | 30. $\sqrt{2ab}\sqrt[6]{ab^5}$ | 31. $\sqrt{2b}\sqrt[3]{4ab^2}$ | 32. $\sqrt[3]{a^2b}\sqrt[6]{a^5b}$ | 33. $\sqrt{2ab}\sqrt[6]{32b^5}$ | 34. $\sqrt{3b}\sqrt[6]{3a^5b^5}$ | 35. $\sqrt[3]{4ab}\sqrt[6]{2ab^5}$ |

4. Realiza la operación:

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|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-------------------------|----------------------------|---------------------------|
| 1. $(\sqrt{2})^2$ | 2. $(\sqrt{3})^4$ | 3. $(\sqrt{3})^3$ | 4. $(\sqrt{6})^3$ | 5. $(\sqrt[4]{2})^2$ | 6. $(\sqrt[3]{2})^3$ | 7. $(\sqrt[3]{3})^5$ | 8. $(\sqrt[3]{4})^4$ |
| 9. $(\sqrt[3]{4})^5$ | 10. $(\sqrt[3]{12})^4$ | 11. $(\sqrt[4]{27})^3$ | 12. $(\sqrt[4]{27})^6$ | 13. $(\sqrt[3]{a})^6$ | 14. $(\sqrt{2a})^2$ | 15. $(\sqrt[4]{3a})^5$ | 16. $(\sqrt[4]{8a})^2$ |
| 17. $(\sqrt[4]{2a^3})^6$ | 18. $(\sqrt[3]{a^2})^2$ | 19. $(\sqrt[4]{3a^3})^2$ | 20. $(\sqrt[3]{3a^2})^5$ | 21. $(\sqrt[4]{2b^3})^2$ | 22. $(\sqrt[3]{4ab})^5$ | 23. $(\sqrt[4]{a^3b^3})^2$ | 24. $(\sqrt[4]{8ab^3})^6$ |

5. Agrupa en una sola raíz:

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|----------------------------------|----------------------------------|---------------------------------|--------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| 1. $\sqrt[3]{4}$ | 2. $\sqrt[5]{8}$ | 3. $\sqrt[5]{16}$ | 4. $\sqrt[3]{25}$ | 5. $\sqrt[3]{4}\sqrt[4]{27}$ | 6. $\sqrt[4]{5}\sqrt[5]{25}$ | 7. $\sqrt[4]{5}\sqrt[5]{36}$ |
| 8. $\sqrt[5]{100}$ | 9. $\sqrt[5]{144}$ | 10. $\sqrt[5]{324}$ | 11. $\sqrt[3]{5}\sqrt[5]{216}$ | 12. $\sqrt[3]{3}\sqrt[5]{225}$ | 13. $\sqrt[4]{5}\sqrt[5]{100}$ | 14. $\sqrt[3]{4}\sqrt[4]{216}$ |
| 15. $\sqrt[3]{4}\sqrt[5]{125}$ | 16. $\sqrt[4]{5}\sqrt[5]{625}$ | 17. $\sqrt[4]{5}\sqrt[5]{324}$ | 18. $\sqrt[3]{5}\sqrt[5]{5}$ | 19. $\sqrt{6}\sqrt[3]{6}$ | 20. $\sqrt[5]{9}\sqrt[3]{3}$ | 21. $\sqrt[3]{5}\sqrt[5]{5}$ |
| 22. $\sqrt[5]{10}\sqrt[4]{10}$ | 23. $\sqrt[5]{40}\sqrt[3]{50}$ | 24. $\sqrt[5]{225}\sqrt[3]{15}$ | 25. $\sqrt[5]{9}\sqrt[4]{a^4}$ | 26. $\sqrt[3]{3}\sqrt[5]{9a^2}$ | 27. $\sqrt[3]{4}\sqrt[4]{4a^2}$ | 28. $\sqrt[4]{5}\sqrt[5]{9a^4}$ |
| 29. $\sqrt[3]{4}\sqrt[5]{8a^3}$ | 30. $\sqrt[5]{81a^2}$ | 31. $\sqrt[5]{16a^2}$ | 32. $\sqrt[5]{81a^4}$ | 33. $\sqrt[4]{5}\sqrt[5]{16a^4}$ | 34. $\sqrt[5]{25a^4}$ | 35. $\sqrt[4]{5}\sqrt[5]{36a^4}$ |
| 36. $\sqrt[3]{\sqrt[5]{100a^2}}$ | 37. $\sqrt[5]{\sqrt[3]{100a^4}}$ | 38. $\sqrt[3]{2a}\sqrt[5]{2a}$ | 39. $\sqrt{a}\sqrt[5]{81a}$ | 40. $\sqrt[5]{4a^2}\sqrt[3]{2a}$ | 41. $\sqrt[3]{\sqrt[4]{4a^2b^2}}$ | 42. $\sqrt[5]{\sqrt[4]{4a^4b^4}}$ |

6. Realiza la operación:

1. $\sqrt[3]{4\sqrt{6}}\sqrt{2}$
2. $\sqrt[6]{6}(\sqrt{2})^3$
3. $\sqrt[3]{9}(\sqrt{3})^3$
4. $\sqrt[6]{2}(\sqrt[3]{4})^4$
5. $\sqrt[6]{2}(\sqrt[3]{2})^4$
6. $\sqrt[6]{2}(\sqrt[3]{9})^4$
7. $\sqrt[6]{6}(\sqrt[3]{2})^4$
8. $\sqrt[3]{9}\sqrt[3]{9}\sqrt[3]{3}$
9. $\sqrt[3]{2}\sqrt[3]{2}\sqrt[3]{2}$
10. $\sqrt[3]{3}\sqrt[3]{3}\sqrt[3]{2}$
11. $\sqrt[3]{4}\sqrt[3]{2}\sqrt[3]{6}$
12. $\sqrt[3]{9}\sqrt[3]{3}\sqrt[3]{3}$
13. $\sqrt{2}\sqrt[3]{4}\sqrt[3]{2}$
14. $\sqrt[3]{3}\sqrt[3]{3}\sqrt[3]{3}$
15. $\sqrt[3]{4}\sqrt[3]{2}\sqrt[3]{2}$
16. $\sqrt[6]{6}\sqrt[3]{3}\sqrt[3]{3}$
17. $\sqrt[3]{12}(\sqrt{2})^3$
18. $\sqrt[4]{2}\sqrt[3]{2}\sqrt[6]{2}$
19. $\sqrt[3]{18}(\sqrt{3})^3$
20. $\sqrt[3]{36}(\sqrt{3})^3$
21. $\sqrt[6]{32}(\sqrt{6})^3$
22. $\sqrt[6]{96}(\sqrt{2})^3$
23. $\sqrt[6]{32}(\sqrt[3]{4})^4$
24. $\sqrt[3]{4}\sqrt[3]{2}\sqrt[3]{18}$
25. $\sqrt[4]{3}\sqrt[3]{3}\sqrt[6]{3}$
26. $\sqrt[3]{36}\sqrt[3]{2}\sqrt[3]{2}$
27. $\sqrt[3]{36}\sqrt[3]{6}\sqrt[3]{6}$
28. $\sqrt[6]{243}(\sqrt{6})^3$

7. Realiza la operación:

1. $\sqrt[6]{3}\left(\frac{\sqrt{3}}{3}\right)^3$
2. $\frac{\sqrt[6]{2}}{2}(\sqrt{2})^3$
3. $(\sqrt{3})^3\sqrt[6]{3}$
4. $\frac{\sqrt[3]{4}}{4}(\sqrt{2})^3$
5. $\frac{\sqrt[3]{2}}{2}(\sqrt{3})^3$
6. $\frac{\sqrt[6]{2}}{2}(\sqrt{6})^3$
7. $\frac{\sqrt[6]{3}}{3}(\sqrt{3})^3$
8. $\frac{\sqrt{2}}{2}\sqrt[3]{4}\sqrt[3]{2}$
9. $\sqrt[6]{3}\left(\frac{\sqrt[3]{2}}{2}\right)^4$
10. $\sqrt[6]{2}\left(\frac{\sqrt[3]{2}}{2}\right)^4$
11. $\sqrt[6]{2}\left(\frac{\sqrt[3]{4}}{2}\right)^4$
12. $\left(\frac{\sqrt[3]{6}}{3}\right)^4\sqrt[6]{3}$
13. $\sqrt{2}\sqrt[3]{4}\sqrt[3]{6}$
14. $\sqrt[3]{3}\sqrt[3]{3}\sqrt[3]{3}$
15. $\frac{\sqrt[3]{4}\sqrt[3]{2}}{2}\sqrt[3]{6}$
16. $\sqrt[3]{2}\sqrt[3]{2}\sqrt[3]{4}$
17. $\frac{\sqrt[3]{9}}{9}\sqrt[3]{3}\sqrt[3]{3}$
18. $\sqrt[3]{9}\sqrt[3]{6}\sqrt[3]{6}$
19. $\frac{\sqrt[3]{6}}{2}\sqrt[3]{4}\sqrt[3]{2}$
20. $\sqrt[3]{3}\sqrt[3]{2}\sqrt[3]{2}$
21. $\frac{\sqrt[3]{2}\sqrt[3]{2}}{2}\sqrt[3]{4}$
22. $\sqrt[3]{2}\sqrt[3]{2}\sqrt[3]{2}$
23. $\sqrt[9]{9}\sqrt[3]{3}\sqrt[3]{3}$
24. $\frac{\sqrt[3]{3}}{3}\sqrt[3]{3}\sqrt[3]{3}$
25. $\left(\frac{\sqrt{6}}{2}\right)^3\sqrt[3]{18}$
26. $\sqrt[6]{32}\left(\frac{\sqrt{2}}{2}\right)^3$
27. $\sqrt[6]{3}\sqrt[4]{4}\sqrt[4]{4}$
28. $\sqrt[6]{3}\sqrt[4]{2}\sqrt[4]{2}$
29. $\left(\frac{\sqrt{6}}{2}\right)^3\sqrt[6]{96}$
30. $(\sqrt{2})^3\sqrt[6]{96}$
31. $\left(\frac{\sqrt{6}}{6}\right)^3\sqrt[6]{96}$
32. $\frac{\sqrt[3]{12}}{12}\sqrt[3]{2}\sqrt[3]{2}$
33. $\sqrt[6]{6}\sqrt[3]{36}\sqrt[6]{6}$
34. $\frac{\sqrt[3]{3}\sqrt[3]{3}}{3}\sqrt[3]{36}$
35. $\sqrt[3]{36}\sqrt[6]{6}\sqrt[3]{6}$
36. $(\sqrt{a})^3\sqrt[3]{a}$
37. $\frac{\sqrt[6]{a}}{2}\sqrt[3]{a}\sqrt[3]{a}$
38. $\frac{\sqrt[4]{a}\sqrt[3]{a}}{2}\sqrt[6]{a}$
39. $\frac{\sqrt[6]{2a}}{2}\sqrt[3]{a}\sqrt[3]{a}$
40. $(\sqrt{a})^3\sqrt[3]{2a^2}$
41. $\sqrt[3]{a}\sqrt[3]{a}\sqrt[3]{2a^2}$
42. $\frac{\sqrt[3]{2a}\sqrt[3]{2a}}{2}\sqrt[6]{a}$

8. Realiza la operación:

1. $-5+\sqrt{8}-1+\sqrt{18}$
2. $2-\sqrt{20}-1+\sqrt{80}$
3. $\sqrt{48}+3-\sqrt{12}+4$
4. $\sqrt{75}-4\sqrt{3}+3+1$
5. $\sqrt{80}+3+2+4\sqrt{5}$
6. $5\sqrt{3}-5-\sqrt{3}-\sqrt{27}$
7. $4-\sqrt{27}+\sqrt{12}-\sqrt{48}$
8. $\sqrt{80}+\sqrt{45}-4-\sqrt{20}$
9. $4\sqrt{5}+\sqrt{8}-3\sqrt{2}-\sqrt{80}$
10. $5\sqrt{3}-\sqrt{27}+\sqrt{8}+\sqrt{32}$
11. $\sqrt{6}-\sqrt{96}+\sqrt{54}+4\sqrt{6}$
12. $5\sqrt{5}-\sqrt{125}-3-\sqrt{20}$
13. $\sqrt{80}+3\sqrt{2}-\sqrt{8}-\sqrt{18}$
14. $\sqrt{20}-5+2\sqrt{5}+\sqrt{125}$
15. $\sqrt{8}-\sqrt{18}-3\sqrt{2}-\sqrt{32}$
16. $\sqrt{50}-\sqrt{8}+5\sqrt{5}+\sqrt{18}$
17. $\sqrt{96}-\sqrt{50}+\sqrt{32}-\sqrt{2}$
18. $\sqrt{20}-3\sqrt{2}+5\sqrt{5}+\sqrt{8}$
19. $\sqrt{45}-\sqrt{80}-\sqrt{18}-\sqrt{32}$
20. $\sqrt{48}-\sqrt{12}+\sqrt{32}+\sqrt{18}$
21. $\sqrt{54}-\sqrt{32}-\sqrt{50}+4\sqrt{2}$
22. $\sqrt{20}+\sqrt{48}+\sqrt{27}+\sqrt{12}$
23. $\sqrt{96}-\sqrt{24}+2\sqrt{6}-\sqrt{75}$
24. $5\sqrt{5}+\sqrt{45}+\sqrt{54}-3\sqrt{5}$
25. $\sqrt{18}-3\sqrt{2}+3\sqrt{3}-\sqrt{27}$
26. $-5\sqrt{2}-\sqrt{75}-\sqrt{18}-\sqrt{27}$
27. $\sqrt{54}-3\sqrt{2}-\sqrt{32}-3\sqrt{6}$
28. $\sqrt{45}-\sqrt{27}-\sqrt{48}-\sqrt{20}$
29. $\sqrt{48}-\sqrt{27}-4\sqrt{3}-5\sqrt{3}$
30. $\sqrt{20}-\sqrt{27}-3\sqrt{3}-\sqrt{45}$
31. $3\sqrt{3}-\sqrt{50}-\sqrt{75}+\sqrt{32}$
32. $\sqrt{27}-\sqrt{48}-\sqrt{75}+\sqrt{50}$
33. $3\sqrt{5}-\sqrt{125}-\sqrt{45}-\sqrt{80}$
34. $3\sqrt{6}-\sqrt{50}+\sqrt{150}-5\sqrt{2}$
35. $\sqrt{48}-\sqrt{125}+\sqrt{27}+3\sqrt{5}$
36. $-\sqrt{54}-\sqrt{80}-\sqrt{125}-3\sqrt{6}$
37. $4-\sqrt{12a^3}-5-\sqrt{75a^3}$
38. $5a-\sqrt{18a^2}-4a+\sqrt{2a^2}$
39. $5a-\sqrt{18a^3}+\sqrt{8a^3}+\sqrt{50a^3}$
40. $\sqrt{2a^2}-\sqrt{8a^2}-\sqrt{75}+\sqrt{50a^2}$

9. Realiza la operación:

1. $(1+\sqrt{5})^2$
2. $(3+\sqrt{6})^2$
3. $(-2+\sqrt{2})^2$
4. $(-3-\sqrt{2})^2$
5. $(1+2\sqrt{6})^2$
6. $(3+3\sqrt{3})^2$
7. $(2-2\sqrt{5})^2$
8. $(2\sqrt{3}-3)^2$
9. $(\sqrt{3}+\sqrt{5})^2$
10. $(-3-2\sqrt{2})^2$
11. $(\sqrt{5}-2\sqrt{3})^2$
12. $(2\sqrt{5}-\sqrt{6})^2$
13. $\sqrt{3}(3+\sqrt{3})$
14. $\sqrt{2}(2\sqrt{2}-1)$
15. $3\sqrt{5}(\sqrt{5}-2)$
16. $2\sqrt{2}(3-\sqrt{2})$
17. $2\sqrt{2}(-2-\sqrt{2})$
18. $3\sqrt{3}(-1+\sqrt{3})$
19. $2\sqrt{6}(\sqrt{6}-\sqrt{2})$
20. $3\sqrt{3}(2\sqrt{3}-3)$
21. $3\sqrt{2}(-1-2\sqrt{2})$
22. $2\sqrt{3}(2\sqrt{2}-\sqrt{6})$
23. $3\sqrt{5}(\sqrt{5}+2\sqrt{3})$
24. $3\sqrt{3}(\sqrt{3}+3\sqrt{2})$

10. Realiza la operación:

$$\begin{array}{llllll}
1. \left(\frac{\sqrt{2}}{3} - 2\right)^2 & 2. \left(1 - \frac{2\sqrt{2}}{3}\right)^2 & 3. \left(\frac{3\sqrt{6}}{2} - 3\right)^2 & 4. \left(\frac{\sqrt{6}}{3} - \frac{1}{6}\right)^2 & 5. \left(\frac{2\sqrt{6}}{3} - \frac{3}{2}\right)^2 & 6. \frac{\sqrt{2}}{3}\left(\sqrt{2} + \frac{1}{2}\right) \\
7. \left(\frac{\sqrt{6}}{2} + 3\sqrt{3}\right)^2 & 8. \frac{\sqrt{5}}{3}(2\sqrt{5} + 3) & 9. \frac{2\sqrt{5}}{3}(2 + \sqrt{5}) & 10. \frac{\sqrt{6}}{2}\left(-\frac{\sqrt{6}}{3} - 1\right) & 11. \frac{3\sqrt{3}}{3}\left(-1 + \frac{\sqrt{3}}{6}\right) & 12. \left(-\frac{2\sqrt{6}}{3} - \sqrt{3}\right)^2 \\
13. \left(-2\sqrt{2} + \frac{\sqrt{6}}{2}\right)^2 & 14. \frac{\sqrt{5}}{3}\left(\frac{3\sqrt{5}}{2} + \frac{2}{3}\right) & 15. \frac{\sqrt{3}}{3}\left(-3 - \frac{2\sqrt{3}}{3}\right) & 16. 2\sqrt{3}\left(-\frac{2\sqrt{3}}{3} - 2\right) & 17. 2\sqrt{3}\left(-\frac{2}{3} - 3\sqrt{3}\right) & 18. \frac{\sqrt{3}}{2}\left(-\frac{3\sqrt{3}}{2} - \frac{1}{6}\right)
\end{array}$$

11. Racionaliza la fracción:

$$\begin{array}{llllllllll}
1. \frac{\sqrt{5}}{\sqrt{3}} & 2. \frac{1}{\sqrt{2}} & 3. \frac{2}{\sqrt{2}} & 4. \frac{2}{\sqrt{5}} & 5. \sqrt{\frac{3}{2}} & 6. \sqrt{\frac{5}{6}} & 7. \frac{2\sqrt{3}}{\sqrt{2}} & 8. \frac{2\sqrt{3}}{\sqrt{6}} & 9. \frac{3\sqrt{5}}{2\sqrt{2}} \\
10. \frac{2\sqrt{6}}{3\sqrt{5}} & 11. \frac{2\sqrt{2}}{5\sqrt{5}} & 12. \frac{2\sqrt{5}}{3\sqrt{6}} & 13. \frac{\sqrt{2}}{2\sqrt{3}} & 14. \frac{1}{\sqrt[3]{3}} & 15. \frac{2}{\sqrt[3]{2}} & 16. \frac{\sqrt[3]{2}}{\sqrt[3]{3}} & 17. \frac{2}{3\sqrt[3]{2}} & 18. \frac{3}{\sqrt[3]{9}} \\
19. \frac{2\sqrt[3]{3}}{3\sqrt[3]{4}} & 20. \sqrt[3]{\frac{2}{3}} & 21. \sqrt[3]{\frac{3}{4}} & 22. \sqrt[3]{\frac{4}{9}} & 23. \frac{2a}{\sqrt{2a}} & 24. \frac{3}{\sqrt{5a}} & 25. \frac{a\sqrt{6}}{\sqrt{5a}} & 26. \frac{2a\sqrt{5}}{\sqrt{3a}} & 27. \frac{2}{a\sqrt{2a}} \\
28. \frac{5\sqrt{3a}}{\sqrt{5}} & 29. \frac{3a\sqrt{6}}{\sqrt{5a}} & 30. \frac{5\sqrt{6}}{3a\sqrt{5a}} & 31. \frac{3}{\sqrt{5} - \sqrt{2}} & 32. \frac{5}{\sqrt{6} + \sqrt{5}} & 33. \frac{3}{\sqrt{6} + \sqrt{2}} & 34. \frac{1}{\sqrt{3} + \sqrt{2}} & 35. \frac{3}{\sqrt{2} + \sqrt{3}} & 36. \frac{3}{\sqrt{2} + \sqrt{6}}
\end{array}$$

12. Realiza la operación:

$$\begin{array}{llllll}
1. (\sqrt{2})^3 \frac{3}{\sqrt{3}} & 2. \frac{2}{\sqrt{2}}(\sqrt{2})^3 & 3. \frac{3}{\sqrt[3]{9}\sqrt{3}}\sqrt{3} & 4. (\sqrt[3]{9})^4 \frac{3}{\sqrt[3]{9}} & 5. \frac{3}{\sqrt{3}}\sqrt[3]{3\sqrt{3}} & 6. \frac{3}{\sqrt[4]{9}\sqrt[3]{9}}\sqrt[3]{3} & 7. \sqrt[6]{2}\left(\frac{3}{\sqrt{3}}\right)^3 \\
8. \left(\frac{3}{\sqrt{3}}\right)^3 \sqrt[3]{2} & 9. \frac{2}{\sqrt[6]{2}}(\sqrt{2})^3 & 10. (\sqrt{2})^3 \frac{9}{\sqrt[3]{9}} & 11. \sqrt[3]{\frac{9}{4}}(\sqrt{3})^3 & 12. \sqrt[3]{\frac{4}{9}}(\sqrt{2})^3 & 13. \left(\frac{3}{\sqrt[3]{9}}\right)^4 \sqrt[3]{2} & 14. (\sqrt{2})^3 \sqrt[3]{\frac{3}{2}} \\
15. \sqrt[3]{6\sqrt{6}} \frac{2}{\sqrt[6]{2}} & 16. \frac{3}{\sqrt[3]{3}\sqrt{3}}\sqrt[6]{3} & 17. \sqrt[3]{6\sqrt{6}} \frac{2}{\sqrt[3]{2}} & 18. \frac{3}{\sqrt[3]{6}\sqrt{6}}\sqrt[6]{6} & 19. \sqrt[3]{12}\left(\frac{2}{\sqrt{2}}\right)^3 & 20. \sqrt[6]{3} \frac{2}{\sqrt[3]{2}\sqrt{2}} & 21. \sqrt{\frac{2}{3}}\sqrt[3]{9\sqrt{6}} \\
22. \sqrt[3]{\frac{2}{3}}\sqrt[3]{3\sqrt{3}} & 23. \sqrt[6]{2} \frac{4}{\sqrt[4]{4}\sqrt[3]{4}} & 24. \sqrt[3]{2\sqrt{2}} \sqrt[3]{\frac{4}{9}} & 25. \sqrt[3]{\frac{9}{4}}\sqrt[3]{3\sqrt{3}} & 26. (\sqrt[3]{18})^4 \frac{2}{\sqrt[6]{2}} & 27. \sqrt[6]{\frac{2}{3}}\sqrt[4]{3\sqrt[3]{3}} & 28. \left(\sqrt{\frac{3}{2}}\right)^3 \sqrt[6]{32}
\end{array}$$

13. Realiza la operación:

$$\begin{array}{llllll}
1. \left(\frac{2}{\sqrt{6} - 1}\right)^2 & 2. \left(\frac{6}{\sqrt{6}} - 3\right)^2 & 3. \left(\frac{6}{\sqrt{2}} + 3\right)^2 & 4. \left(1 - \frac{3}{\sqrt{6}}\right)^2 & 5. \frac{3}{\sqrt{6}}(3 + \sqrt{6}) & 6. \left(3 + \sqrt{\frac{1}{2}}\right)^2 \\
7. \left(2 + \sqrt{\frac{1}{5}}\right)^2 & 8. \left(\frac{3}{2\sqrt{6}} + 1\right)^2 & 9. \left(3\sqrt{\frac{2}{3}} + 2\right)^2 & 10. \left(2 - 2\sqrt{\frac{2}{3}}\right)^2 & 11. \left(-3 - 3\sqrt{\frac{1}{3}}\right)^2 & 12. \left(\sqrt{\frac{1}{2}} - \sqrt{3}\right)^2 \\
13. \left(-2 + \frac{2}{3\sqrt{2}}\right)^2 & 14. \left(\sqrt{5} - \frac{3}{2\sqrt{2}}\right)^2 & 15. \left(2\sqrt{3} + \frac{2}{\sqrt{2}}\right)^2 & 16. \frac{3}{\sqrt{2}}\left(1 + \sqrt{\frac{1}{2}}\right) & 17. 3\sqrt{5}\left(\sqrt{\frac{1}{5}} - 2\right) & 18. \frac{3}{\sqrt{3}}\left(\sqrt{\frac{1}{3}} - 2\right) \\
19. 2\sqrt{6}\left(2 + \sqrt{\frac{3}{2}}\right) & 20. \left(3\sqrt{5} + \sqrt{\frac{1}{3}}\right)^2 & 21. 3\sqrt{6}\left(-\frac{2}{\sqrt{6}} - 1\right) & 22. 3\sqrt{2}\left(\sqrt{\frac{1}{2}} + 3\right) & 23. \frac{3}{2\sqrt{3}}\left(\frac{6}{\sqrt{3}} - 1\right) & 24. \frac{3}{2\sqrt{6}}\left(3 + \frac{6}{\sqrt{6}}\right) \\
25. \frac{2}{3\sqrt{5}}(3\sqrt{5} - 2) & 26. \frac{3}{2\sqrt{3}}(2 - 3\sqrt{3}) & 27. \frac{3}{\sqrt{5}}(\sqrt{5} - 3\sqrt{3}) & 28. \left(2\sqrt{\frac{1}{5}} + 2\sqrt{3}\right)^2 & 29. \left(-2\sqrt{2} - \frac{2}{3\sqrt{5}}\right)^2 & 30. 3\sqrt{6}\left(2 + 3\sqrt{\frac{3}{2}}\right)
\end{array}$$

