

Radicals

Simplify the following:

1. $\frac{\sqrt{27}}{6}$

2. $\frac{\sqrt{243}}{6}$

3. $\frac{3+\sqrt{27}}{9}$

4. $\frac{\sqrt{80}}{\sqrt{125}}$

5. $\frac{\sqrt{72}}{\sqrt{200}}$

6. $\frac{\sqrt{128}}{\sqrt{72}}$

7. $\frac{\sqrt{196q^5}}{\sqrt{484q}}$

8. $\frac{\sqrt{810c^3d^7}}{\sqrt{1000c^5d}}$

9. $\frac{\sqrt{96}}{\sqrt{150}}$

Rationalize each denominator

10. $\frac{3}{\sqrt{13}}$

11. $-\frac{9}{2\sqrt{3}}$

12. $\frac{4}{9\sqrt{5}}$

13. $\sqrt{\frac{7}{40}}$

14. $\sqrt{\frac{8}{45}}$

15. $\frac{3}{5+\sqrt{5}}$

16. $\frac{20}{4-\sqrt{3}}$

17. $\frac{6}{3-\sqrt{7}}$

18. $\frac{3}{3+\sqrt{11}}$

Solve the Equation

Steps for solving Radical equations

Step 1 Isolate the radical

Step 2 Square both sides

Step 3 Solve the equation

Step 4 Check for extraneous solutions

19. $\sqrt{2x - 1} = 7$

20. $\sqrt{3x - 5} = 5$

21. $\sqrt{3m + 2} - 5 = 0$

22. $\sqrt{5t + 1} + 4 = 6$

23. $\sqrt{2r - 3} + 5 = 0$

24. $\sqrt{x - 2} + 2 = x$

25. $\sqrt{r - 4} - r + 2 = 0$

26. $3\sqrt{3x - 5} - 8 = 4$

27. $2\sqrt{4a + 2} - 16 = 16$

28. $\sqrt{4z - 3} = \sqrt{3z + 2}$

$$29. \sqrt{7y + 1} = \sqrt{2y - 5}$$

$$30. \sqrt{2x - 5} = \sqrt{5x + 3}$$

There are times when you will have to square the equation twice to get rid of all radicals.

$$31. \sqrt{m} + 1 = \sqrt{m + 9}$$

$$32. \sqrt{x} + 3 = \sqrt{x + 5}$$

$$33. \sqrt{y - 3} + 2 = \sqrt{4y + 2}$$

$$34. \sqrt{4t + 1} = \sqrt{t - 2} + 3$$

35. Christy dropped her sunglasses from a bridge 400 feet above a river. Using the formula $t = \frac{\sqrt{h}}{4}$ to find how many seconds it took for the sunglasses to reach the river.