

CHALLENGING RADICALS QUESTIONS

CANSU OLCE

A STAR MATHS (www.astarmaths.com.au)

1. $\sqrt[3]{2^x} = 4$
 $x = ?$

2. $\sqrt[3]{2^{x+1}} = \sqrt{4^{x-1}}$
 $x = ?$

3. $\sqrt{4} - \sqrt[3]{-8} + \sqrt{(-2)^4} \div \sqrt[4]{(-4)^2}$
 $= ?$

4. $\sqrt{(-2)^2} - \sqrt{(-2)^4} + \sqrt{(-4)^6} = ?$

5. $x = \sqrt{2} - 1$
 $\sqrt{x^2 - 2x + 1} = ?$

6. $x < y < 0$
 $\sqrt{(x-y)^2} + \sqrt{(-x)^2} + \sqrt{y^2} = 10$
Find the sum of the possible x values.

7. $\sqrt{3x-5} = 2$
Find x.

8. $\sqrt{80} + \sqrt{45} - \sqrt{125} = ?$

9. $\sqrt{0.49} + \sqrt{0.09} - \sqrt{0.25} = ?$

10. $\sqrt{8.1} + \sqrt{0.1} = ?$

11. $\frac{\sqrt{1.44} - \sqrt{1.21}}{\sqrt{0.01}} = ?$

12. $\sqrt{2 + \sqrt{a}} = 3$
Find a.

13. $\sqrt[4]{144} + \sqrt[6]{27} = ?$

14. $\sqrt{14 + \sqrt{9 - \sqrt{25}}} = ?$

15. $\sqrt{7 + \sqrt{1 + \sqrt[3]{27}}} = ?$

16. $\sqrt{11}(\sqrt{0.25} + \sqrt{0.81}) = ?$

17. $\sqrt{\sqrt{65} - 1} \times \sqrt{\sqrt{65} + 1} = ?$

18. $a = \sqrt{3}$
 $b = \sqrt{11}$
Find $\sqrt{1.32}$ in terms of a and b.

19. $2^{3x} = a$
Find 4^{x+1} in terms of a.

20. $\sqrt[4]{14 + \sqrt[3]{5 + \sqrt{9}}} = ?$

21. $\sqrt[2]{3} \times \sqrt[3]{3} = \sqrt[6]{3x}$
Find x.

22. $\sqrt{x\sqrt{x}} = 2\sqrt{2}$
Find x.

23. $\sqrt{2} \times \sqrt{2 - \sqrt{2}} \times \sqrt{2 + \sqrt{2}} = ?$

24. $\sqrt{9 - 2\sqrt{14}} + \sqrt{9 + 2\sqrt{14}} = ?$

25. $\sqrt{x-2} = \sqrt{x} - \sqrt{2}$

ANSWER KEY

1. 6

2. 2

3. 6

4. 62

5. $2-\sqrt{2}$

6. -10

7. 3

8. $2\sqrt{5}$

9. -0.1

10. $\sqrt{10}$

11. 1

12. 49

13. $3\sqrt{3}$

14. 4

15. 3

16. $14/3$

17. 8

18. $\frac{ab}{5}$

19. $4\sqrt[3]{a^2}$

20. 2

21. 81

22. 4

23. 2

24. $2\sqrt{7}$

25. 2

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