

RADICALS TOPIC TEST

1. The number $\sqrt{2}$ is equal to
- 1.41421
 - a rational fraction
 - an infinite repeating decimal
 - an infinite non-repeating decimal
 - NOTA
2. If $x = \sqrt{27} + \sqrt{48}$, then x^2
- 441
 - 291
 - 147
 - 75
 - NOTA
3. Simplify: $\frac{\sqrt{72} + \sqrt{108}}{\sqrt{8} + \sqrt{12}}$
- 3
 - 4
 - 6
 - 9
 - NOTA
4. $(\sqrt{2}\sqrt{2}\sqrt{4})(\sqrt{3}\sqrt{3}\sqrt{9}) =$
- 5
 - 18
 - 36
 - 216
 - NOTA
5. The desired outcome was $3\sqrt{2}$, but the derived answer was $2/\sqrt{6}$. By what number should the derived answer be multiplied to get the desired answer?
- $\sqrt{6}$
 - $\sqrt{3}$
 - $2\sqrt{3}$
 - $3\sqrt{3}$
 - NOTA
6. $\sqrt{2}$ is what percent of $4\sqrt{2}$?
- 20
 - 25
 - 40
 - 400
 - NOTA

7. $\sqrt{12} = N$, N is approximately rounded to the nearest hundredth,
 $N =$

- a. 3.50 b. 3.47 c. 3.46 d. 3.45 e. NOTA

8. Simplify: $|7 + 24i|$

- a. 5 b. 15 c. 25 d. 35 e. NOTA

9. When $\frac{3}{2\sqrt[3]{3} + \sqrt[3]{5}}$ is simplified, the sum of the terms in
of the denominator is

- a. 11 b. 29 c. 41 d. 64 e. NOTA

10. $-2 \pm \frac{\sqrt{7}}{3}$ are the roots of the quadratic equation, $ax^2 + bx + c = 0$
Find the value of $a + b - c$.

- a. -2 b. 2 c. 6 d. 8 e. NOTA

11. Simplify: $\sqrt{2\sqrt{63} + 2/(8 + 3\sqrt{7})}$

- a. 2 b. 4 c. 8 d. 16 e. NOTA

12. Given: $\frac{\sqrt[3]{320} \cdot \sqrt[3]{200}}{\sqrt[4]{1800} \cdot \sqrt[4]{450}} = \frac{a}{b}$

If a and b are relatively prime,
Find $2a + b$ if

- a. 11 b. 9 c. 7 d. 5 e. NOTA

13. Find x if $x = \sqrt{12 + \sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}}}$

- a. 3 b. 4 c. 6 d. 12 e. NOTA

14. There are two real values of x for which the distance from the point $(3,x)$ to the point $(5,3)$ is $2\sqrt{17}$. Find the sum of the x -values.

- a. 16 b. 12 c. 10 d. 6 e. NOTA

15. If $\sqrt{6}x^2 - 4x - 2\sqrt{6} = 0$, Find the sum of the roots.

- a. $-\sqrt{6}/3$ b. $\sqrt{6}/3$ c. $2\sqrt{6}/3$ d. $3\sqrt{6}/3$ e. NOTA

16. $(2^{1+\sqrt{2}})^{1-\sqrt{2}} + (8/27)^{-2/3} =$

- a. $7/4$ b. $9/4$ c. $11/4$ d. $13/4$ e. NOTA

17. R varies directly as S and inversely as T . When $R = 4/3$, $T = 9/14$, and $S = 3/7$. Find S when $R = \sqrt{48}$ and $T = \sqrt{75}$

- a. 30 b. 40 c. 42 d. 56 e. NOTA

18. For how many value(s) of x will $\sqrt[3]{x^3 + 6x^2 - 4} - x - 2 = 0$ be true?

- a. 3 b. 2 c. 1 d. 0 e. NOTA

19. Find the product of $(\sqrt{3} \sqrt[3]{2}) (\sqrt{2} \sqrt[3]{3}) ({}^3\sqrt{2\sqrt{3}}) ({}^6\sqrt{3})$

- a. 6 b. 12 c. 18 d. 24 e. NOTA

20. Simplify: $\frac{\sqrt[3]{112} - \sqrt{9072}}{\sqrt{112}} - \frac{\sqrt[4]{1008} - \sqrt{448}}{\sqrt{112}}$

- a. -4 b. -3 c. -2 d. -1 e. NOTA

21. The first three terms of a geometric progression are $\sqrt{2}$, $3\sqrt{2}$ and $6\sqrt{2}$. The fourth term is

- a. $7\sqrt{2}$ b. $8\sqrt{2}$ c. $9\sqrt{2}$ d. $12\sqrt{2}$ e. NOTA

22. If $x = \sqrt{1 + \sqrt{1 + \sqrt{1 + \sqrt{1 + \dots}}}}$ then

- a. $1.0 < x < 1.5$ b. $1.5 < x < 2.0$ c. $2.0 < x < 2.5$
 d. $2.5 < x < 3.0$ e. NOTA

23. Given: $x = 11 + 2\sqrt{x + 4}$
 How many integral solution(s) satisfy this equation?

- a. 0 b. 1 c. 2 d. 3 e. NOTA

24. Find the value of x/y if $(3/\sqrt{y}) - (1/\sqrt{x}) = 2/(\sqrt{x} + \sqrt{y})$

- a. $1/3$ b. $2/3$ c. $4/3$ d. $5/3$ e. NOTA

25. The equation $\sqrt{x + 8} - 5/(\sqrt{x + 8}) = 4$ has

- a. two true roots
 b. two extraneous roots between -10 and -1
 c. an extraneous root between -5 and -1
 d. an extraneous root between -10 and -6
 e. NOTA

26. Simplify $\left(\sqrt[3]{\sqrt{45} + \sqrt{20}} \right)^{-2}$

- a. $1/25$ b. $1/5$ c. 5 d. 25 e. NOTA

27. Find the difference of the roots of $\sqrt{3 - 2x} + \sqrt{8x - 7} = \sqrt{6x - 2}$

- a. $-19/8$ b. $3/8$ c. $7/4$ d. $19/8$ e. NOTA

28. Completely simplify the expression $\sqrt[n]{\frac{4^{2n+1} + 2^{4n+1}}{6}}$

- a. 4 b. 12 c. 16 d. 24 e. NOTA

29. Given the inequality $\sqrt{1+x} - \sqrt{1-x} \geq \sqrt{x}$ with all real values for x and where a represents the largest real value of x and b represents the smallest real value of x . Find $a + b$.

- a. 0 b. $4/5$ c. 1 d. $9/5$ e. NOTA

30. When $x^4 + 3\sqrt{3}x^3 + (-6 - 11\sqrt{3})x^2 + (3 + 12\sqrt{3})x + (2 - 4\sqrt{3})$ is divided by $x - 1 - \sqrt{3}$, the quotient is

$$ax^3 + bx^2 + cx + d + \frac{e + f\sqrt{3}}{x - 1 - \sqrt{3}}$$

Find $e + f$.

- a. -246 b. -28 c. 30 d. 34 e. NOTA