$\sqrt{8+2\sqrt{15}} < \frac{5}{3}$

$(\sqrt{a}+\sqrt{b}+\sqrt{c})^2$

$(\sqrt{a}+\sqrt{b}+\sqrt{c})^2 = (\sqrt{a})^2+(\sqrt{b})^2+(\sqrt{c})^2+2\sqrt{a}\sqrt{b}+2\sqrt{b}\sqrt{c}+2\sqrt{c}\sqrt{a}$

$= a+b+c+2\sqrt{ab}+2\sqrt{bc}+2\sqrt{ca}$

Sum

2ab বাদ্দা 2

a, b, c

$\sqrt{a}+\sqrt{b}+\sqrt{c} = \sqrt{a+b+c+2\sqrt{ab}+2\sqrt{bc}+2\sqrt{ca}}$

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$$(\sqrt{2}+\sqrt{3}+\sqrt{5})^2 = 2+3+5+2\sqrt{6}+2\sqrt{15}+2\sqrt{10}$$

$$= 10+2\sqrt{6}+2\sqrt{15}+2\sqrt{10}$$

$$\Rightarrow \sqrt{2}+\sqrt{3}+\sqrt{5} = \sqrt{10+2\sqrt{6}+2\sqrt{15}+2\sqrt{10}}$$

$2\ 3 \quad 3\ 5 \quad 5\ 2$

$$= \sqrt{5}+\sqrt{3}+\sqrt{2}$$

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$$\sqrt{14+2\sqrt{12}-2\sqrt{21}-4\sqrt{7}}$$

$12 = 4 \times 3$ $\quad 21 = 7 \times 3$ $\quad 2 \times 2 \times 7 = 28$

$$+2\sqrt{28}$$

$28 = 7 \times 4$

$$=-\sqrt{7}+\sqrt{4}+\sqrt{3}$$

$$=-\sqrt{7}+2+\sqrt{3}$$

$2 \sim 1.732$

$$-\sqrt{7}+\sqrt{3}+2$$

$$\sqrt{7}-\sqrt{3}-2 \times$$

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$$(a+b+c+d)^2 = a^2+b^2+c^2+d^2+2ab+2ac+2ad+2bc+2bd+2cd$$

$$(\sqrt{a}+\sqrt{b}+\sqrt{c}+\sqrt{d})^2 = a+b+c+d+2\sqrt{ab}+2\sqrt{ac}+2\sqrt{ad}+2\sqrt{bc}+2\sqrt{bd}+2\sqrt{cd}$$

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16. The expression $\sqrt{10+2(\sqrt{6}-\sqrt{15}-\sqrt{10})}$ is equal to :

व्यंजक $\sqrt{10+2(\sqrt{6}-\sqrt{15}-\sqrt{10})}$ निम्नलिखित में से किसके बराबर है?

a) $\sqrt{3}+\sqrt{2}-\sqrt{5}$
b) $\sqrt{3}-\sqrt{2}-\sqrt{5}$
c) $\sqrt{3}-\sqrt{2}+\sqrt{5}$
d) $\sqrt{2}-\sqrt{3}-\sqrt{5}$

3 2 3 5 5 2

1.73 1.41 2.23

$\sqrt{3}+\sqrt{2}-\sqrt{5}$

$\sqrt{3}+\sqrt{2}$ $\sqrt{5}$

$5+2\sqrt{6} > 5$

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[redacted]

SSC CGL T2, 12 Sep 2019

17. Find the value of $\sqrt{21-4\sqrt{5}+8\sqrt{3}-4\sqrt{15}}$.

$\sqrt{21-4\sqrt{5}+8\sqrt{3}-4\sqrt{15}}$ का मान ज्ञात कीजिये |

a) $2-\sqrt{5}-\sqrt{12}$ (2×2, 2×4)

b) $2+\sqrt{5}-\sqrt{12}$ (2×2)

c) $2-\sqrt{5}+2\sqrt{3}$

d) $-2+\sqrt{5}+2\sqrt{3}$

$\sqrt{21-2\sqrt{20}+2\sqrt{48}-2\sqrt{60}}$

5 4 4 12 12 5

$= \sqrt{12}+2-\sqrt{5}$

$= 2\sqrt{3}+2-\sqrt{5}$

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18. If $\sqrt{10+\sqrt{24}+\sqrt{40}+\sqrt{60}} = \sqrt{a}+\sqrt{b}+\sqrt{c}$, then the value of $a+b+c$ is :

यदि $\sqrt{10+\sqrt{24}+\sqrt{40}+\sqrt{60}} = \sqrt{a}+\sqrt{b}+\sqrt{c}$ है, तो $a+b+c$ का मान है :

4×6 4×10 4×15

a) $\sqrt{10}$ b) 10 c) 11 d) $\sqrt{11}$

$$= \sqrt{10+2\sqrt{6}+2\sqrt{10}+2\sqrt{15}}$$

2×3 2×5 5×3

$$= \sqrt{5}+\sqrt{3}+\sqrt{2}$$

coaching center

19. If $\sqrt{21+3\sqrt{8}-6\sqrt{3}-6\sqrt{7}-\sqrt{24}-\sqrt{56}+2\sqrt{21}} = -\sqrt{a}+\sqrt{b}+\sqrt{c}-\sqrt{d}$ and $a<b<c<d$, find $a^{d-c}+b=$?

$-\sqrt{2}+\sqrt{3}+\sqrt{7}-\sqrt{9}$

अगर $\sqrt{21+3\sqrt{8}-6\sqrt{3}-6\sqrt{7}-\sqrt{24}-\sqrt{56}+2\sqrt{21}} = -\sqrt{a}+\sqrt{b}+\sqrt{c}-\sqrt{d}$ है और $a<b<c<d$ है तो $a^{d-c}+b$ का मान ज्ञात कीजिये |

a) 5 ~~b)~~ 7 c) 9 d) 12

$$\sqrt{21+2\sqrt{18}-2\sqrt{27}-2\sqrt{63}-2\sqrt{6}-2\sqrt{14}+2\sqrt{21}}$$

9 2 9 3 9 7 2 3 7 2 7 3

d a b c

2^2+3

coaching center

[redacted]

Involving expressions:

$$\sqrt{(a+b)\pm 2\sqrt{a\times b}} = \sqrt{a} \pm \sqrt{b}$$

$$\sqrt{(x+2+x+3)+2\sqrt{(x+2)(x+3)}} = \sqrt{x+2} + \sqrt{x+3}$$

$$= \sqrt{2x+5+2\sqrt{x^2+5x+6}}$$

coaching center

20. Find the value of $\sqrt{(x+2)+(x+1)+2\sqrt{(x+2)(x+1)}}$

$\sqrt{(x+2)+(x+1)+2\sqrt{(x+2)(x+1)}}$ का मान ज्ञात कीजिये |

a) $\sqrt{x+2}-\sqrt{x+1}$ b) $\sqrt{x+1}+\sqrt{x+2}$

c) $\sqrt{2x+3}$ d) None of these

$\sqrt{x+2}+\sqrt{x+1}$

coaching center

21. Find the square root of $\frac{3}{2}(x-1)+\sqrt{2x^2-7x-4}=?$

$\sqrt{\frac{3}{2}(x-1)+2\sqrt{2x^2-7x-4}}$ का वर्गमूल ज्ञात कीजिये |

a) $\sqrt{2x+1}+\sqrt{x-4}$ b) $\sqrt{2x-1}+\sqrt{x+4}$

c) $\frac{1}{\sqrt{2}}(\sqrt{2x+1}+\sqrt{x-4})$ d) $\frac{1}{\sqrt{2}}(\sqrt{2x-1}+\sqrt{x+4})$

$2x(x-4)+1(x-4)$

$=(x-4)(2x+1)$

Sum $= 3x-3$

$=3(x-1)$

$\frac{3}{2}+4x=\frac{3+8x}{2}$

$\frac{\sqrt{2x+1}+\sqrt{x-4}}{\sqrt{2}}$

coaching center

22. Find the square root of $a + x + \sqrt{2ax + x^2}$

$\sqrt{a + x + \sqrt{2ax + x^2}}$ का वर्गमूल ज्ञात कीजिये |

a) $\frac{1}{\sqrt{2}}\left(\sqrt{x} + \sqrt{2a + x}\right)$

b) $\frac{1}{\sqrt{2}}\left(\sqrt{x} + \sqrt{a + 2x}\right)$

c) $\left(\sqrt{x} + \sqrt{2a + x}\right)$

d) $\left(\sqrt{x} + \sqrt{a + 2x}\right)$

$$\sqrt{\frac{2a+2x+2\sqrt{2ax+x^2}}{2}}$$

$x(2a+x)$

Sum $= 2x + 2a$

$$= \frac{\sqrt{2a+x} + \sqrt{x}}{\sqrt{2}}$$

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