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MATHS

BOOKS - UNITED BOOK HOUSE

Quadratic Surds

Exercise

1. If a + b = $\sqrt{5}$ and a - b = $\sqrt{3}$, then the value of $a^2 + b^2$ is

A. 5

B. 4

C. 3

D. 2

Answer:

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2. The simple value of $\sqrt{108} - \sqrt{75}$ is

A. $\sqrt{3}$

B. $3\sqrt{3}$

C. $\sqrt{33}$

D. none of these.

Answer:

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3. If $m =$ sqrtfrac(n)(n+1/2)`and m = 1/2, then n =

A. 3

B. 1/3

C. 6

D. 1/6

Answer:

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4. If $\left(5+\sqrt{5}\right)\left(5-\sqrt{5}\right)=25-x^2$, then the value of x is

A. -5

B. 5

C. $\pm\sqrt{5}$

D. none of these.

Answer:

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5. If $\sqrt{5}+\sqrt{3}$ = a, then $\sqrt{5}-\sqrt{3}$ =

A. - a

B. 1/a

C. 2/a

D. none of these.

Answer:

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6. If x + 1/x = $\sqrt{3}$ then the value of x^6 is

A. -1

B. 0

C. 1

D. none of these.

Answer:

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7. Which one of $\sqrt[3]{2}$, $\sqrt[4]{3}$, $\sqrt[6]{5}$ and $\sqrt[12]{26}$ is greatest?

A. $\sqrt[3]{2}$

B. $\sqrt[4]{3}$

C. $\sqrt[6]{5}$

D. $\sqrt[12]{26}$

Answer:

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8. If $2r = h + \sqrt{h}^2 + r^2$, then r : h = $(r \neq 0)$

A. $2 : \sqrt{3}$

B. 3 : 4

C. 4 : 3

D. $\sqrt{3}:2.$

Answer:

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9. $x+y=\frac{4}{\sqrt{3}}$ and $x-y=\frac{2}{\sqrt{3}}$, then the value of 4xy is

A. 4

B. 3

C. 2

D. 1

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10. If $x + y : \sqrt{x}y = 4 : 1$, then the ratio x : y =

A. $(2 + \sqrt{3}) : (2 - \sqrt{3})$

B. $(2 - \sqrt{3}) : (2 + \sqrt{3})$

C. $\sqrt{3} : 1$

D. $(2 + \sqrt{5}) : (2 - \sqrt{5})$.

Answer:

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11. Which of the numbers below is a surd?

A. $\sqrt{625}$

B. $\sqrt[3]{216}$

C. $\sqrt[4]{216}$

D. $\sqrt{125}$

Answer:

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12. $\sqrt{507}$ in simplest from is equal to___

A. $25\sqrt{7}$

B. $12\sqrt{7}$

C. $13\sqrt{7}$

D. $13\sqrt{3}$

Answer:

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13. $12\sqrt{48}+\sqrt{343}-3\sqrt{112}-4\sqrt{75}$ is equal to___

A. $28\sqrt{3} - 5\sqrt{7}$

B. 56

C. `7sqrt3

D. $7\sqrt{3} - \sqrt{7}$

Answer:

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14. $2\sqrt{10} \times \sqrt{3} \times 2\sqrt{2}$ is equal to___

A. $\sqrt{240}$

B. $8\sqrt{15}$

C. $16\sqrt{15}$

D. $4\sqrt{15}$

Answer:

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15. Rationalize denominator $\frac{1}{1-\sqrt{2}+\sqrt{3}}$

A. $\frac{\sqrt{2}-\sqrt{6}-2}{4}$

B. $\frac{\sqrt{2}+\sqrt{6}-2}{4}$

C. $\frac{2+\sqrt{6}-\sqrt{2}}{4}$

D. N.O.T.

Answer:

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16. a and b are rational and $\sqrt{48} - \sqrt{75} + \sqrt{16} = a + b\sqrt{3}$, then a, b are equal to___

A. a = 4, b = -1

B. a = -4, b = 1

C. a = 4, b = 1

D. a = -4, b = -1

Answer:

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17. Find square root of $x + y + z + 2\sqrt{yz} + 2\sqrt{zx} + 2\sqrt{xy}$

A. $\pm\left(\sqrt{x} + \sqrt{y} + z\right)$

B. $\pm\left(\sqrt{y} + \sqrt{x} + z\right)$

C. $\pm\left(\sqrt{z} + \sqrt{x} + y\right)$

D. $\pm\left(\sqrt{x} + \sqrt{y} + \sqrt{z}\right)$

Answer:

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18. Find the value of $\left(x^3 - 7x^2 + 13x + 17\right)$ when $x = 2 + \sqrt{3}$

A. 20

B. 17

C. 0

D. none of these.

Answer:

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19. Given $x = 1 + \sqrt{2} + \sqrt{3}$, then find the value of $\left(2x^4 - 8x^3 - 5x^2 + 26x - 28\right)$

A. 0

B. $2\sqrt{6}$

C. - 6sqrt6`

D. `6sqrt6

Answer:

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20. Solve for x, when

$$\sqrt{2x^2+9}+\sqrt{2x^2-9}=9+3\sqrt{7}$$

A. 6

B. -6

C. ± 6

D. $\pm\frac{3}{\sqrt{2}}$

Answer:

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21. The value of $\sqrt{2\sqrt{3\sqrt{2\sqrt{3}\ldots\ldots\ \propto}}}$ is equal to____

A. $(6)^{\frac{1}{3}}$

B. $(12)^{\frac{1}{3}}$

C. $(6)^{\frac{1}{4}}$

D. cannot be determined

Answer:

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22. The value of $\sqrt{2}+\sqrt{2}+\sqrt{2}+\sqrt{+}\ldots\ldots\ldots\propto$ is equal to___

A. 2, -1

B. only -1

C. only 2

D. cannot be determined

Answer:

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23. Simplified value of $\sqrt{-\sqrt{3}+\sqrt{3}+8\sqrt{7}+4\sqrt{3}}$ is____

A. 0

B. 1

C. 2

D. 3

Answer:

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24. $x = \frac{\sqrt{3}+1}{\sqrt{3}-1}$ and $y = \frac{\sqrt{3}-1}{\sqrt{3}+1}$. Then $\frac{x^2+xy+y^2}{x^2-xy+y^2}$ is equal to :

A. 15/13

B. 13/15

C. 1

D. None of these

Answer:

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25. The square root of $\left(33 - 4\sqrt{35}\right)$ is____

A. $\pm\left(\sqrt{7} - 2\sqrt{5}\right)$

B. $\pm\left(2\sqrt{7} + \sqrt{5}\right)$

C. $\pm\left(2\sqrt{7} - \sqrt{5}\right)$

D. none of these.

Answer:

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26. The square root of root of $5+\sqrt{6}-\sqrt{10}-\sqrt{15}$ is___

A. $\pm\frac{1}{\sqrt{2}}(\sqrt{3}+\sqrt{5}-\sqrt{2})$

B. $\pm\frac{1}{\sqrt{2}}(\sqrt{3}+\sqrt{2}-\sqrt{5})$

C. $\pm\frac{1}{\sqrt{2}}(\sqrt{2}+\sqrt{5}-\sqrt{3})$

D. N.O.T.

Answer:

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27. If

$x\left(3\sqrt{5}+2\sqrt{2}\right)-\sqrt{2}\left(\sqrt{10}-1\right)y=\sqrt{10}\left(2\sqrt{2}+\sqrt{5}\right)$

then rational values of x and y are respectively___

A. 1, 2

B. 1, 1

C. 2, 1

D. 2, 2

Answer:

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28. When $x = \frac{\sqrt{3}}{2}$, the value of $\left(\frac{1+x}{1+\sqrt{1}+x} + \frac{1-x}{1-\sqrt{1}-x} \right)$ is____

A. 1

B. 2

C. 3

D. 4

Answer:

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29. $\frac{3\sqrt{7}}{\sqrt{5}+\sqrt{2}}-\frac{5\sqrt{5}}{\sqrt{2}+\sqrt{7}}+\frac{2\sqrt{2}}{\sqrt{7}+\sqrt{5}}$

equals____

A. $2\sqrt{5}$

B. $2\sqrt{7}$

C. $2\sqrt{2}$

D. 0

Answer:

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30. The simplified value of $\left(\frac{\sqrt{a}x}{\sqrt{a}+\sqrt{x}-\sqrt{a}+x}-\frac{\sqrt{a}x}{\sqrt{a}+\sqrt{x}+\sqrt{a}+x}\right)$ is____

A. $\sqrt{a}$

B. $\sqrt{x}$

C. $\sqrt{a}+x$

D. 0

Answer:

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