



MATHS

BOOKS - RD SHARMA MATHS (ENGLISH)

RATIONALISATION

Others

1. If $x = 3 + \sqrt{8}$, find the value of $x^2 + \frac{1}{x^2}$

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2. If $x = \frac{\sqrt{3} + 1}{2}$, find the value of $4x^3 + 2x^2 - 8x + 7$.

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3. Rationalise the denominator and simplify: $\frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$

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4. If $x = 2 + \sqrt{3}$, find the value of $x^3 + \frac{1}{x^3}$

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5. Rationalise the denominator of $\frac{1}{3 + \sqrt{2}}$

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6. Rationalise the denominator of $\frac{5}{\sqrt{3} - \sqrt{5}}$

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7. Rationalise the denominator of $\frac{1}{7 + 3\sqrt{2}}$

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8. Rationalise the denominator in each of the following : i) $\frac{2}{7}$ (ii) $\frac{2}{3\sqrt{3}}$ (iii)

$$\frac{2\sqrt{7}}{\sqrt{11}}$$

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9. Given that $\sqrt{5} = 2.236$ approximately, find to three places of decimals the value of $\frac{2}{\sqrt{5}}$.

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10. Find the value to three places of decimals, of $\sqrt{10}$: It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, and $\sqrt{5} = 2.236$ (approx.)

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11. Find the value to three places of decimals; of $\sqrt{15}$. It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{10} = 3.162$ and $\sqrt{5} = 2.236$ (approx.).

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12. If $\sqrt{2} = 1.414$, and $\sqrt{3} = 1.732$ find the value of $\sqrt{3} + \sqrt{6}$ upto three place of decimals.

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13. Simplify each of the following by rationalising the denominator;

$$\frac{1}{5 + \sqrt{2}} \quad \text{(ii)} \quad \frac{5 + \sqrt{6}}{5 - \sqrt{6}} \quad \text{(iii)} \quad \frac{7 + 3\sqrt{5}}{7 - 3\sqrt{5}} \quad \text{(iv)} \quad \frac{2\sqrt{3} - \sqrt{5}}{2\sqrt{2} + 3\sqrt{3}}$$

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14. If both a and b are rational numbers, find the values of a and b in each of the following equalities : $\frac{\sqrt{3} - 1}{\sqrt{3} + 1} = a + b\sqrt{3}$

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15. Evaluate : $\frac{15}{\sqrt{10} + \sqrt{20} + \sqrt{40} - \sqrt{5} - \sqrt{80}}$, is being given that $\sqrt{5} = 2.236$ and $\sqrt{10} = 3.1362$

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16. If $x = \frac{1}{2 - \sqrt{3}}$, find the value of $x^3 - 2x^2 - 7x + 5$

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17. If $x = 1 - \sqrt{2}$, find the value of $\left(x - \frac{1}{x}\right)^3$

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18. If $x = 3 - 2\sqrt{2}$, find $x^2 + \frac{1}{x^2}$

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19. If $a = \frac{2 - \sqrt{5}}{2 + \sqrt{5}}$ and $b = \frac{2 + \sqrt{5}}{2 - \sqrt{5}}$, find $a^2 - b^2$

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20. If $x = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ and $y = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$, find $x^2 + y^2$

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21. Show that:

$$\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2} = 5$$

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22. Simplify each of the following : (i) $\frac{3}{5 - \sqrt{3}} + \frac{2}{5 + \sqrt{3}}$ (ii)

(iii) $\frac{4 + \sqrt{5}}{4 - \sqrt{5}} + \frac{4 - \sqrt{5}}{4 + \sqrt{5}}$ (iii) $\frac{\sqrt{5} - 2}{\sqrt{5} + 2} - \frac{\sqrt{5} + 2}{\sqrt{5} - 2}$

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23. If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$

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24. Prove that:

$$\frac{1}{1 + \sqrt{2}} + \frac{1}{\sqrt{2} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{4}} + \frac{1}{\sqrt{4} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{7}}$$

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25. Simplify :

(i) $(5 + \sqrt{5})(5 - \sqrt{5})$

(ii) $(3 + 2\sqrt{2})(3 - 2\sqrt{2})$

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26. Simplify the following expressions:

(i) $(3 + \sqrt{3})(2 + \sqrt{2})$

(ii) $(5 + \sqrt{7})(2 + \sqrt{5})$



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27. Simplify each of the following:

(i) $(16)^{\frac{1}{5}} \times (2)^{\frac{1}{5}}$

(ii) $\frac{(243)^{\frac{1}{4}}}{(3)^{\frac{1}{4}}}$



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28. Simplify the following expressions:

(i) $(11 + \sqrt{11})(11 - \sqrt{11})$

(ii) $(5 + \sqrt{7})(5 - \sqrt{7})$

$$(iii) (\sqrt{8} - \sqrt{2})(\sqrt{8} + \sqrt{2})$$

$$(iv) (\sqrt{7} - 3)(\sqrt{7} + 3)$$

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29. Simplify the following expressions: (i) $(4 + \sqrt{7})(3 + \sqrt{2})$ (ii)

$$(3 + \sqrt{3})(5 - \sqrt{2}) \quad (iii) \quad (\sqrt{5} - 2)(\sqrt{3} - \sqrt{5}) \quad (iv)$$

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

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30. Simplify each of the following: (i) 43×163 (ii) $\frac{12504}{24}$

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31. Simplify :

$$(i) (\sqrt{5} + \sqrt{2})^2$$

$$(ii) (\sqrt{11} - \sqrt{5})^2$$



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32. Rationalise the denominator of $\frac{2}{\sqrt{3}}$.



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33. Simplify the following expressions:

(i) $(\sqrt{3} + \sqrt{7})^2$

(ii) $(2\sqrt{5} + 3\sqrt{2})^2$



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34. Simplify each of the following:

(i) $\sqrt[5]{16} \times \sqrt[5]{2}$

(ii) $\frac{\sqrt[4]{243}}{\sqrt[4]{3}}$



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35. Simplify the following expressions:

(i) $(3 + \sqrt{3})(2 + \sqrt{2})$

(ii) $(5 + \sqrt{7})(2 + \sqrt{5})$



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36. Simplify:

(i) $(5 + \sqrt{5})(5 - \sqrt{5})$

(ii) $(3 + 2\sqrt{2})(3 - 2\sqrt{2})$



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37. Simplify :

(i) $(\sqrt{5} + \sqrt{2})^2$

(ii) $(\sqrt{11} - \sqrt{5})^2$



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38. Simplify each of the following:

(i) $\sqrt[3]{4} \times \sqrt[3]{16}$

(ii) $\frac{\sqrt[4]{1250}}{\sqrt[4]{2}}$



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39. Simplify the following expressions: (i) $(4 + \sqrt{7})(3 + \sqrt{2})$

(ii) $(3 + \sqrt{3})(5 - \sqrt{2})$ (iii) $(\sqrt{5} - 2)(\sqrt{3} - \sqrt{5})$



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40. Simplify the following expressions:

(i) $(11 + \sqrt{11})(11 - \sqrt{11})$

(ii) $(5 + \sqrt{7})(5 - \sqrt{7})$

(iii) $(\sqrt{8} - \sqrt{2})(\sqrt{8} + \sqrt{2})$



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41. Simplify the following expressions:

(i) $(3 + \sqrt{3})(3 - \sqrt{3})$

(ii) $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$



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42. Simplify the following expressions:

(i) $(\sqrt{3} + \sqrt{7})^2$

(ii) $(\sqrt{5} - \sqrt{3})^2$

(iii) $(2\sqrt{5} + 3\sqrt{2})^2$



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43. Rationalise the denominator of $\frac{2}{\sqrt{3}}$



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44. Rationalise the denominator of $\frac{1}{3 + \sqrt{2}}$



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45. Rationalise the denominator of $\frac{5}{\sqrt{3} - \sqrt{5}}$



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46. Rationalise the denominator of $\frac{1}{7 + 3\sqrt{2}}$



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47. Rationalise the denominator in each of the following:

(i) $\frac{2}{\sqrt{7}}$

(ii) $\frac{2}{3\sqrt{3}}$

(iii) $\frac{2\sqrt{7}}{\sqrt{11}}$



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48. Given that $\sqrt{5} = 2.236$ approximately, find the three places of decimals the value of $\frac{2}{\sqrt{5}}$

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49. Find the value of three places of decimals, of each of following: It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{10} = 3.162$ and $\sqrt{5} = 2.236$ (approx). (i) $\frac{1}{\sqrt{2}}$ (ii) $\frac{1}{\sqrt{3}}$ (iii) $\frac{1}{\sqrt{10}}$

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50. Find the value of three places of decimals; of each of the following. It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{10} = 3.162$ and $\sqrt{5} = 2.236$ (approx). (i) $\frac{\sqrt{2} + 1}{\sqrt{5}}$ (ii) $\frac{2 - \sqrt{3}}{\sqrt{3}}$ (iii) $\frac{\sqrt{10} - \sqrt{5}}{\sqrt{2}}$

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51. If $\sqrt{2} = 1.414$ find the value of $\frac{\sqrt{3}}{\sqrt{6}}$ upto three places of decimals.

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52. Simplify each of the following by rationalising the denominator:

(i) $\frac{1}{5 + \sqrt{2}}$

(ii) $\frac{5 + \sqrt{6}}{5 - \sqrt{6}}$

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53. Simplify each of the following by rationalising the denominator:

$\frac{7 + 3\sqrt{5}}{7 - 3\sqrt{5}}$ (ii) $\frac{2\sqrt{3} - \sqrt{5}}{2\sqrt{2} + 3\sqrt{3}}$

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54. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{\sqrt{3} - 1}{\sqrt{3} + 1} = a + b\sqrt{3}$$



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55. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{3 + \sqrt{7}}{3 - \sqrt{7}} = a + b\sqrt{7}$$



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56. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}} = a + b\sqrt{3}$$



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57. If both a and b are rational numbers, find the values of a and b in each

of the following equalities:
$$\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}} = a + b\sqrt{3}$$



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58. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{5 + \sqrt{3}}{7 - 4\sqrt{3}} = 47a + \sqrt{3}b$$



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59. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = a + b\sqrt{15}$$



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60. If both a and b are rational numbers, find the values of a and b in

each of the following equalities:
$$\frac{\sqrt{2} + \sqrt{3}}{3\sqrt{2} - 2\sqrt{3}} = a - b\sqrt{6}$$



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61. Simplify: $\frac{3}{5 - \sqrt{3}} + \frac{2}{5 + \sqrt{3}}$

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62. Simplify: $\frac{4 + \sqrt{5}}{4 - \sqrt{5}} + \frac{4 - \sqrt{5}}{4 + \sqrt{5}}$

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63. Simplify: $\frac{\sqrt{5} - 2}{\sqrt{5} + 2} - \frac{\sqrt{5} + 2}{\sqrt{5} - 2}$

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64. Prove that:

$$\frac{1}{3 - \sqrt{8}} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2} = 5$$

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65.

Prove

that:

$$\frac{1}{1 + \sqrt{2}} + \frac{1}{\sqrt{2} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{4}} + \frac{1}{\sqrt{4} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{7}}$$


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66. If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$


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67. If $x = 3 - 2\sqrt{2}$, find $x^2 + \frac{1}{x^2}$


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68. If $x = 1 - \sqrt{2}$, find the value of $\left(x - \frac{1}{x}\right)^3$


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69. If $x = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ and $y = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$, find $x^2 + y^2$

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70. If $a = \frac{2 - \sqrt{5}}{2 + \sqrt{5}}$ and $b = \frac{2 + \sqrt{5}}{2 - \sqrt{5}}$, find $a^2 - b^2$

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71. If $x = \frac{1}{2 - \sqrt{3}}$, find the value of $x^3 - 2x^2 - 7x + 5$

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72. Evaluate : $\frac{15}{\sqrt{10} + \sqrt{20} + \sqrt{40} - \sqrt{5} - \sqrt{80}}$, is being given that $\sqrt{5} = 2.236$ and $\sqrt{10} = 3.1362$

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73. Rationalise the denominator of each of the following

(i) $\frac{3}{\sqrt{5}}$

(ii) $\frac{3}{2\sqrt{5}}$



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74. Rationalise the denominator of each of the following

(i) $\frac{1}{\sqrt{12}}$

(ii) $\frac{\sqrt{2}}{\sqrt{5}}$



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75. Rationalise the denominator of each of the following

(i) $\frac{\sqrt{3} + 1}{\sqrt{2}}$

(ii) $\frac{\sqrt{2} + \sqrt{5}}{\sqrt{3}}$

(iii) $\frac{3\sqrt{2}}{\sqrt{5}}$



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76. Find the value to three places of decimals of each of the following.

It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{5} = 2.236$ and

$$\sqrt{10} = 3.162$$

$$(i) \frac{2}{\sqrt{3}} \quad (ii) \frac{3}{\sqrt{10}}$$



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77. Find the value to three places of decimals of each of the following. It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{5} = 2.236$ and

$$\sqrt{10} = 3.162 \quad (i) \frac{\sqrt{5} + 1}{\sqrt{2}} \quad (ii) \frac{\sqrt{10} + \sqrt{15}}{\sqrt{2}}$$



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78. Find the value to three places of decimals of each of the following. It is given that $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, $\sqrt{5} = 2.236$ and

$$\sqrt{10} = 3.162 \quad (i) \frac{2 + \sqrt{3}}{3} \quad (ii) \frac{\sqrt{2} - 1}{\sqrt{5}}$$



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79. Express each one of the following with rational denominator:

(i) $\frac{1}{3 + \sqrt{2}}$

(ii) $\frac{1}{\sqrt{6} - \sqrt{5}}$

(iii) $\frac{16}{\sqrt{41} - 5}$

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80. Express each one of the following with rational denominator:

(i) $\frac{30}{5\sqrt{3} - 3\sqrt{5}}$

(ii) $\frac{1}{2\sqrt{5} - \sqrt{3}}$

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81. Express each one of the following with rational denominator: (i)

$\frac{\sqrt{3} + 1}{2\sqrt{2} - \sqrt{3}}$ (ii) $\frac{6 - 4\sqrt{2}}{6 + 4\sqrt{2}}$



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82. Express each one of the following with rational denominator:

(i) $\frac{3\sqrt{2} + 1}{2\sqrt{5} - 3}$ (ii) $\frac{b^2}{\sqrt{a^2 + b^2} + a}$

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83. Rationalise the denominator and simplify: (i) $\frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ (ii) $\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}}$

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84. Rationalise the denominator and simplify: (i) $\frac{1 + \sqrt{2}}{3 - 2\sqrt{2}}$ (ii) $\frac{2\sqrt{6} - \sqrt{5}}{3\sqrt{5} - 2\sqrt{6}}$

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85. Rationalise the denominator and simplify: (i) $\frac{4\sqrt{3} + 5\sqrt{2}}{\sqrt{48} + \sqrt{18}}$ (ii)

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

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86. Simplify: (i) $\frac{3\sqrt{2} - 2\sqrt{2}}{3\sqrt{2} + 2\sqrt{3}} + \frac{\sqrt{12}}{\sqrt{3} - \sqrt{2}}$ (ii) $\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} + \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$

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87. Simplify: (i) $\frac{7 + 3\sqrt{5}}{3 + \sqrt{5}} - \frac{7 - 3\sqrt{5}}{3 - \sqrt{5}}$ (ii)

$$\frac{1}{2 + \sqrt{3}} + \frac{2}{\sqrt{5} - \sqrt{3}} + \frac{1}{2 - \sqrt{5}}$$

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88. Simplify: $\frac{2}{\sqrt{5} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{2}} - \frac{3}{\sqrt{5} + \sqrt{2}}$

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89. In each of the following determine rational number a and b : (i)

$$\frac{\sqrt{3}-1}{\sqrt{3}+1} = a - b\sqrt{3} \quad (\text{ii}) \quad \frac{4+\sqrt{2}}{2+\sqrt{2}} = a - \sqrt{b}$$

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90. In each of the following determine rational number a and b :

$$(i) \frac{3+\sqrt{2}}{3-\sqrt{2}} = a + b\sqrt{2} \quad (ii) \frac{5+3\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$$

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91. In each of the following determine rational number a and b :

$$(i) \frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}} = a - b\sqrt{77} \quad (ii) \frac{4+3\sqrt{5}}{4-3\sqrt{5}} = a + b\sqrt{5}$$

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92. If $x = 2 + \sqrt{3}$, find the value of $x^3 + \frac{1}{x^3}$



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93. If $x = 3 + \sqrt{8}$, find the value of $x^2 + \frac{1}{x^2}$



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94. Find the value of $\frac{6}{\sqrt{5} - \sqrt{3}}$, it being given that $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$



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95. Find the values of each of the following correct to three places of decimals, it being given that

$\sqrt{2} = 1.4142$, $\sqrt{3} = 1.732$, $\sqrt{5} = 2.2360$, $\sqrt{6} = 2.4495$ and

$\sqrt{10} = 3.162$. (i) $\frac{3 - \sqrt{5}}{3 + 2\sqrt{5}}$ (ii) $\frac{1 + \sqrt{2}}{3 - 2\sqrt{2}}$



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96. If $x = \sqrt{3}$ find the value of $2x^2 - 8x + 7$.

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97. Write the value of $(2 + \sqrt{3})(2 - \sqrt{3})$

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98. Write the reciprocal of $5 + \sqrt{2}$

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99. Write the rationalisation factor of $7 - 3\sqrt{5}$

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100. If $\frac{\sqrt{3} - 1}{\sqrt{3} + 1} = x + y\sqrt{3}$, find the value of x and y



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101. If $x = \sqrt{2} - 1$, then write the value of $\frac{1}{x}$



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102. Simplify: $\sqrt{3 + 2\sqrt{2}}$



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103. Simplify: $\sqrt{3 - 2\sqrt{2}}$



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104. If $a = \sqrt{2} + 1$, then find the value of $a - \frac{1}{a}$



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105. If $x = 2 + \sqrt{3}$, find the value of $x + \frac{1}{x}$

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106. Write the rationalisation factor of $\sqrt{5} - 2$

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107. If $x = 3 + 2\sqrt{2}$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is

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108. $\sqrt{10} \cdot \sqrt{15}$ is equal to (a) $6\sqrt{5}$ (b) $5\sqrt{6}$ (c) $7\sqrt{5}$ (d) $10\sqrt{5}$

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109. $6^5 \times 6^5$ is equal to:

(a) 36^5

(b) 6^{25}

(c) 6^5

(d) 12^5



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110. The rationalisation factor of $\sqrt{3}$ is

(a) $-\sqrt{3}$

(b) $\frac{1}{\sqrt{3}}$

(c) $2\sqrt{3}$

(d) $-2\sqrt{3}$



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111. The rationalisation factor of $2 + \sqrt{3}$ is

(a) $2 - \sqrt{3}$

(b) $\sqrt{2} + 3$

(c) $\sqrt{2} - 3$

(d) $\sqrt{3} - 2$



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112. If $x = \sqrt{5} + 2$, then $x - \frac{1}{x}$ equals

(a) $2\sqrt{5}$

(b) 4

(c) 2

(d) $\sqrt{5}$



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113. If $\frac{\sqrt{3} - 1}{\sqrt{3} + 1} = a - b\sqrt{3}$, then

(a) $a = 2, b = 1$

(b) $a = 2, b = -1$

(c) $a = -2, b = 1$

(d) $a = b = 1$



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114. the simplest rationalising factor of $3\sqrt{500}$ (a) $3\sqrt{2}$ (b) $3\sqrt{5}$ (c) $\sqrt{3}$ (d) none of



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115. The simplest rationalising factor of $\sqrt{3} + \sqrt{5}$ is

(a) $\sqrt{3} - 5$

(b) $3 - \sqrt{5}$

(c) $\sqrt{3} - \sqrt{5}$

(d) $\sqrt{3} + \sqrt{5}$



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116. The simplest rationalising factor of $2\sqrt{5} - \sqrt{3}$ is

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



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117. If $x = \frac{2}{3 + \sqrt{7}}$, then $(x - 3)^2 =$

- (a) 1
- (b) 3
- (c) 6
- (d) 7



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118. If $x = 7 + 4\sqrt{3}$ and $xy = 1$, then $\frac{1}{x^2} + \frac{1}{y^2} = ?$ (a) 64 (b) 134 (c)

194 (d) $\frac{1}{49}$



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119. If $x + \sqrt{15} = 4$, then $x + \frac{1}{x} =$

(a) 2

(b) 4

(c) 8

(d) 1



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120. If $x = \sqrt[3]{2 + \sqrt{3}}$, then $x^3 + \frac{1}{x^3} =$ (a) 2 (b) 4 (c) 8 (d) 9



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121. If $x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ and $y = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$, then $x + y + xy =$ (a) 9 (b)

5 (c) 17 (d) 7



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122. If $x = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ and $y = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$, then $x^2 + xy + y^2 =$ (a)

101 (b) 99 (c) 98 (d) 102

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123. The value of $\sqrt{3 - 2\sqrt{2}}$ is

(a) $\sqrt{2} - 1$

(b) $\sqrt{2} + 1$

(c) $\sqrt{3} - \sqrt{2}$

(d) $\sqrt{3} + \sqrt{2}$

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124. The value of $\sqrt{5 + 2\sqrt{6}}$ is

(a) $\sqrt{3} - \sqrt{2}$

(b) $\sqrt{3} + \sqrt{2}$

(c) $\sqrt{5} + \sqrt{6}$

(d) none of these

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125. If $\sqrt{2} = 1.4142$, then $\sqrt{\frac{\sqrt{2}-1}{\sqrt{2}+1}}$ is equal to (a) 0.1718 (b) 5.8282 (c) 0.4142 (d) 2.4142

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126. If $\sqrt{2} = 1.414$ find the value of $\frac{\sqrt{3}}{\sqrt{6}}$ upto three places of decimals.

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127. The positive square root of $7 + \sqrt{48}$

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128. $\frac{1}{\sqrt{9} - \sqrt{8}}$ is equal to:

(a) $3 + 2\sqrt{2}$

(b) $\frac{1}{3 + 2\sqrt{2}}$

(c) $3 - 2\sqrt{2}$

(d) $\frac{3}{2} - \sqrt{2}$

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129. The value of $\frac{\sqrt{48} + \sqrt{32}}{\sqrt{27} + \sqrt{18}}$ is (a) $\frac{4}{3}$ (b) 4 (c) 3 (d) $\frac{3}{4}$

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130. If $x = \sqrt{6} + \sqrt{5}$ then find $x^2 + \frac{1}{x^2} - 2$

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