



ST. LAWRENCE HIGH SCHOOL



A Jesuit Christian minority Institution

Subject: Mathematics

Class- X

Date:26/06/2021

Worksheet-3

Chapter- Quadratic Surds

Topic- concept of quadratic surds

1. Choose the correct alternative. $1 \times 15 = 15$

a) $(\sqrt{5} + \sqrt{2}) \div \sqrt{7} = 1/7 (\sqrt{35} + a)$, find value of a

i) $\sqrt{12}$ ii) $\sqrt{14}$ iii) 14 iv) none of these

b) Find product of $3\sqrt{5}$ and $5\sqrt{3}$.

i) $15\sqrt{15}$ ii) 15 iii) $\sqrt{15}$ iv) none of these

c) Find product: $(\sqrt{3} + 1)(\sqrt{3} - 1)(2 - \sqrt{3})(4 + 2\sqrt{3})$

i) $6\sqrt{3}$ ii) 8 iii) 4 iv) none of these

d) $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3}) = 25 - x^2$, Find the value of x.

i) ± 23 ii) $\pm\sqrt{23}$ iii) $\sqrt{23}$ iv) none of these

e) Rationalise the denominator: $\frac{3 + \sqrt{5}}{\sqrt{7} - \sqrt{3}}$

i) $\frac{1}{4}(3 + \sqrt{5})(\sqrt{7} + \sqrt{3})$ ii) $\frac{(3 + \sqrt{5})(\sqrt{7} - \sqrt{3})}{4}$ iii) $\frac{(3 - \sqrt{5})(\sqrt{7} + \sqrt{3})}{4}$ iv) none of these

f) Simplify: $\frac{3\sqrt{8} - 2\sqrt{12} + \sqrt{20}}{3\sqrt{18} - 2\sqrt{27} + \sqrt{45}}$

i) $3/2$ ii) $1/3$ iii) $2/3$ iv) none of these

g) Simplify: $\frac{5}{\sqrt{2} + \sqrt{3}} - \frac{1}{\sqrt{2} - \sqrt{3}}$

i) $4(\sqrt{2} - \sqrt{3})$ ii) $4(\sqrt{3} - \sqrt{2})$ iii) $\sqrt{3} - 2\sqrt{2}$ iv) none of these

h) If $x = \sqrt{3} + \sqrt{2}$ find $1/x$

i) $\sqrt{3} - \sqrt{2}$ ii) $2\sqrt{3} - \sqrt{2}$ iii) $3\sqrt{2} - \sqrt{3}$ iv) none of these

i) If $x = \sqrt{3} + \sqrt{2}$, then find $(x - 1/x)$

i) $\sqrt{2}$ ii) $2\sqrt{2}$ iii) $2\sqrt{3}$ iv) none of these

j) If $x = \sqrt{3} + \sqrt{2}$, then find $x^2 - \frac{1}{x^2}$

i) $4\sqrt{6}$ ii) $2\sqrt{6}$ iii) $\sqrt{6}$ iv) none of these

k) If $x = \sqrt{3} + \sqrt{2}$, then find $x^3 + \frac{1}{x^3}$

i) $18\sqrt{2}$ ii) $18\sqrt{3}$ iii) $9\sqrt{3}$ iv) none of these

l) If $x = 2 + \sqrt{3}$ then find $x - 1/x$

i) $3\sqrt{2}$ ii) $2\sqrt{3}$ iii) $\sqrt{3}$ iv) none of these

m) If $y = 2 - \sqrt{3}$, then find $y^2 + \frac{1}{y^2}$

i) 14 ii) $2\sqrt{3}$ iii) 16 iv) none of these

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

i) $30\sqrt{3}$ ii) $15\sqrt{3}$ iii) $26\sqrt{3}$ iv) none of these

o) Solve the equation : $x + (4 + \sqrt{3}) = 7 + 8\sqrt{3}$

i) $3 + \sqrt{3}$ ii) $3 + 7\sqrt{3}$ iii) $11 + 9\sqrt{3}$ iv) none of these

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