



ST. LAWRENCE HIGH SCHOOL



A Jesuit Christian minority Institution

Subject: Mathematics

Class- X

Date:13/05/2020

Answer key of Worksheet-26

Chapter- Quadratic Surds

Topic- concept of quadratic surds

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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)  $\pm 23$  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) If  $x = 2 + \sqrt{3}$  and  $y = 2 - \sqrt{3}$  then find  $xy + 1/xy$

i) 4 ii) 2 iii) 1 iv) none of these

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