

Tender Heart High School, Sec. 33 B, Chd.

Class: 9th

Date: 20.5.2024

Subject: Maths

Teacher: Ms. Reena

Revision

Chapter-1 Rational and Irrational Numbers

Q1 Simplify by rationalizing the denominator:-

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

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

Q2 If $x = 2 + \sqrt{3}$, find the value of $x^2 + \frac{1}{x^2}$

[Ans. 14]

Q3 Prove that $\sqrt{5}$ is irrational number

Q4 Represent following on number line:-

(i) $\sqrt{3}$

(ii) $-\frac{5}{3}$

(iii) $\frac{3}{4}$

(iv) $\sqrt{7}$

Q5 Find three rational numbers between $\frac{1}{5}$ and $\frac{1}{2}$

Q6 Rationalize the denominator of $\frac{1}{\sqrt{3} + \sqrt{2} - 1}$

Q7 Find the value of 'a' and 'b'

(i) $\frac{3}{\sqrt{3} - \sqrt{2}} = a\sqrt{3} - b\sqrt{2}$

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

Chapter-2 Compound Interest

Q1 Calculate the compound interest due in $2\frac{1}{2}$ years on ₹6000 at 10 percent compounded annually. [Ans. 1623]

Q2 Calculate the difference between the compound interest and the simple interest on ₹4000 at 8 per cent per annum and in 2 years. [Ans. 25.60]

Q3 Find the sum invested at 10% compounded annually, on which the interest for the first year plus the interest for the third year amount to ₹1768 [Ans. 8000]

Q4 Calculate the amount and the compound interest on ₹12000 in 3 years when the rates of interest for successive year are 8%, 10% and 15% resp. [Ans. 4394.40]

Q5 At what rate percent per annum C.I. will ₹2000 amount to ₹2315.25 in 3 years? [Ans. 5%.]

Q6 The population of a town increases by 20% every year. If its present population is 2,16,000, find
(i) its population after 2 yrs.
(ii) Its population 2 years ago.

[Ans. 311040
150000]

Chapter - 3 Expansions

Q1 If $a+b=9$ and $ab=-22$, find

- (i) $a-b$ (ii) a^2-b^2

Q2 Given $a^2 + \frac{1}{a^2} = 7$ and $a \neq 0$ find

- (i) $a + \frac{1}{a}$ (ii) $a - \frac{1}{a}$ (iii) $a^2 - \frac{1}{a^2}$

Q3 If $a^2+b^2+c^2=29$ and $a+b+c=9$, find $ab+bc+ca$

Q4 If $a+b=3$ and $ab=2$, find the values of
(i) a^2+b^2 (ii) $a-b$
(iii) a^2-b^2 (iv) a^3+b^3

Q5 If $x^4 + \frac{1}{x^4} = 194$, find the values of

- (i) $x^2 + \frac{1}{x^2}$ (ii) $x + \frac{1}{x}$ (iii) $x^3 + \frac{1}{x^3}$

Q6 If $x - \frac{2}{x} = 3$, find the value of $x^3 - \frac{8}{x^3}$

Q7 If $a = 5 + 2\sqrt{6}$ and $b = \frac{1}{a}$,

then find the values of

- (i) a^2+b^2 (ii) a^3+b^3

Q8 Find the expansions of

- (i) $(2a+3b)^3$ (ii) $\left(3x - \frac{4}{y}\right)^3$

- (iii) $(x-2y+5z)^2$

Chapter - 8 Indices

Q1 Simplify the following:-

(i) $(2a^{-3}b^2)^3$

(ii) $\frac{a^{-1} + b^{-1}}{(ab)^{-1}}$

(iii) $5^0 \times 4^{-1} \times 8^{\frac{1}{3}}$

(iv) $\left(\frac{27}{8}\right)^{\frac{2}{3}} - \left(\frac{1}{4}\right)^{-2} + 6^0$

(v) $\frac{5^{n+3} - 6 \times 5^{n+1}}{9 \times 5^n - 2^2 \times 5^n}$

(vi) $(3^2)^0 + 3^{-4} \times 3^6 + \left(\frac{1}{3}\right)^{-2}$

Q2 Prove the following:-

(i) $(a+b)^{-1} (a^{-1} + b^{-1}) = \frac{1}{ab}$

(ii) $\frac{x + y + z}{x^{-1}y^{-1} + y^{-1}z^{-1} + z^{-1}x^{-1}} = xyz$

Q3 If $3^{x+1} = 9^{x-2}$, find the value of 2^{1+x}

Q4 Solve for x

(i) $2^3 (5^0 + 3^{2x}) = 8 \frac{8}{27}$

(ii) $5^{2x-1} = 25^{x-1} + 100$