

Review Exercise 1

Q1: MCQs Answer

(i)	(c)	(ii)	(d)	(iii)	(d)	(iv)	(d)	(v)	(a)	(vi)	(b)	(vii)	(a)
viii	(b)	ix	(d)	x	(d)								

Q2: If $a = \frac{3}{2}$, $b = \frac{5}{3}$ and $c = \frac{7}{5}$ then
Verify that.

(i) $a(b+c) = ab + ac$

L.H.S = $a(b+c)$

$$= \frac{3}{2} \left(\frac{5}{3} + \frac{7}{5} \right)$$

$$= \frac{3}{2} \left(\frac{25 + 21}{15} \right)$$

$$= \frac{3}{2} \left(\frac{46}{15} \right)$$

$$= \frac{23}{5}$$

$$\begin{array}{r|l} 3 & 3, 5 \\ \hline 5 & 1, 5 \\ \hline & 1, 1 \end{array}$$

$$3 \times 5 = 15$$

$$3 \sqrt{15}$$

$$\frac{15}{x}$$

$$5 \times 5 = 25$$

(2)

$$R.H.S = ab + ac$$

$$= \left(\frac{3}{2}\right)\left(\frac{5}{3}\right) + \left(\frac{3}{2}\right)\left(\frac{7}{5}\right)$$

$$= \frac{5}{2} + \frac{21}{10}$$

$$= \frac{25 + 21}{10}$$

$$= \frac{46}{10}$$

$$= \frac{23}{5}$$

$$L.H.S = R.H.S$$

$$(ii) a = \frac{3}{2}, b = \frac{5}{3}, c = \frac{7}{5}$$

$$(a+b)c = ac + bc$$

$$L.H.S = (a+b)c$$

$$= \left(\frac{3}{2} + \frac{5}{3}\right)\frac{7}{5}$$

$$= \left(\frac{9 + 10}{6}\right)\frac{7}{5}$$

30

$$= \left(\frac{19}{6} \right) \frac{7}{5}$$

$$= \frac{133}{30}$$

$$R.H.S = ac + bc$$

$$= \left(\frac{3}{2} \right) \left(\frac{7}{5} \right) + \left(\frac{8}{3} \right) \left(\frac{7}{8} \right)$$

$$= \frac{21}{10} + \frac{7}{3}$$

$$= \frac{63 + 70}{30}$$

$$= \frac{133}{30}$$

$$L.H.S = R.H.S \text{ Ans.}$$

Q3: If $a = \frac{4}{3}$, $b = \frac{5}{2}$, $c = \frac{7}{4}$, Then Verify ⁽⁴⁾
the associative Property of real numbers
w.r.t addition and multiplication.

Solution:

Associative Property w.r.t Addition

$$a + (b + c) = (a + b) + c$$

$$\text{L.H.S} = a + (b + c)$$

$$= \frac{4}{3} + \left(\frac{5}{2} + \frac{7}{4} \right)$$

$$= \frac{4}{3} + \left(\frac{10 + 7}{4} \right)$$

$$= \frac{4}{3} + \frac{17}{4}$$

$$= \frac{16 + 51}{12}$$

$$\boxed{= \frac{67}{12}}$$

$$\text{R.H.S} = (a + b) + c$$

$$= \left(\frac{4}{3} + \frac{5}{2} \right) + \frac{7}{4}$$

5

$$= \left(\frac{8+15}{6} \right) + \frac{7}{4}$$

$$= \frac{23}{6} + \frac{7}{4}$$

$$= \frac{46 + 21}{12}$$

$$= \frac{67}{12}$$

Hence it is verify that

$$a+(b+c) = (a+b)+c$$

$$L.H.S = R.H.S$$

$$a = \frac{4}{3}, b = \frac{5}{2}, c = \frac{7}{4}$$

Associative Property w.r.t Multiplication

$$a(bc) = (ab)c$$

$$L.H.S = a(bc)$$

$$= \frac{4}{3} \left(\frac{5}{2} \times \frac{7}{4} \right)$$

$$= \frac{4}{3} \left(\frac{35}{8} \right)$$

(6)

$$= \frac{35}{6}$$

$$R.H.S = (ab)c$$

$$= \left(\frac{4^2}{3} \times \frac{5}{2} \right) \frac{7}{4}$$

$$= \left(\frac{\overset{5}{10}}{3} \right) \left(\frac{7}{4_2} \right)$$

$$= \frac{35}{6}$$

$$L.H.S = R.H.S$$

Hence verified that
 $a(bc) = (ab)c$

Q4: Is 0 a rational number? Explain.

Yes, 0 is a rational number because it can be written in the form of $\frac{p}{q}$ where p and $q \in \mathbb{Z}$ and $q \neq 0$

Q5: State trichotomy Property of real numbers. (7)

$\forall a, b \in \mathbb{R}$, either $a = b$ or $a > b$ or $a < b$

Q6: Find two rational number between 4 and 5

Solution:

$$\frac{4+5}{2} \Rightarrow \frac{9}{2}$$

$$\frac{\frac{9}{2} + 5}{2} \Rightarrow \frac{9+10}{2}$$

$$= \frac{19}{2}$$

$$= \frac{19}{2} \div \frac{2}{1}$$

$$= \frac{19}{2} \times \frac{1}{2}$$

$$= \frac{19}{4}$$

Hence Two rational numbers between 4 and 5 are $\frac{9}{2}$ and $\frac{19}{4}$

Q7: Simplify The following:

$$(i) \sqrt[5]{\frac{x^{15}y^{35}}{z^{20}}}$$

Solution:

$$= \left(\frac{x^{15}y^{35}}{z^{20}} \right)^{\frac{1}{5}}$$

$$= \frac{x^{15 \times \frac{1}{5}} \cdot y^{35 \times \frac{1}{5}}}{z^{20 \times \frac{1}{5}}}$$

$$\boxed{= \frac{x^3 y^7}{z^4} \text{ Ans}}$$

$$(ii) \sqrt[3]{(27)^{2x}}$$

Solution:

$$= \sqrt[3]{(27)^{2x}}$$

$$= \sqrt[3]{(3^3)^{2x}}$$

$$= (3^{6x})^{\frac{1}{3}}$$

$$= 3^{6x \times \frac{1}{3}}$$

$$\boxed{= 3^{2x}} \text{ Ans.}$$

$$(iii) \frac{6(3)^{n+2}}{3^{n+1} - 3^n}$$

Solution:

$$= \frac{6(3)^{n+2}}{3^{n+1} - 3^n}$$

$$= \frac{6 \cdot 3^n \cdot 3^2}{3^n \cdot 3^1 - 3^n}$$

$$= \frac{6 \cdot 3^n \cdot 9}{3^n \cdot (3 - 1)}$$

$$= \frac{6 \times 9}{2}$$

$$= \frac{54}{2}$$

(9)

$$\boxed{= 27}$$

Q8: The Sum of Three Consecutive odd integers is 51. Find the three integers

Let,

First odd integer = x

Second odd integer = $x+2$

Third odd integer = $x+4$

According to given condition

$$x + x + 2 + x + 4 = 51$$

$$3x + 6 = 51$$

$$3x = 51 - 6$$

$$3x = 45$$

$$x = \frac{45}{3}$$

$$x = 15$$

First odd integer = $x = 15$

$$\begin{aligned} 2^{\text{nd}} \text{ odd integer} &= x + 2 \\ &= 15 + 2 \\ &= 17 \end{aligned}$$

$$\begin{aligned}
 \text{Third odd integer} &= x + 4 \\
 &= 15 + 4 \\
 &= 19
 \end{aligned}$$

$$\boxed{\text{Integer} = 15, 17, 19}$$

Q9: Abdullah Picked up 96 balls and Place Them into Two buckets. one bucket has Twenty-eight more balls than the other bucket. How many balls were in each bucket.

Solution:

$$\text{Total balls} = 96$$

let The number of balls

$$\text{Put one bucket} = x$$

Number of balls Put in

$$\text{other bucket} = x + 28$$

According to given Condition.

$$x + x + 28 = 96$$

$$2x + 28 = 96$$

$$2x = 96 - 28$$

$$2n = 68$$

$$n = \frac{68}{2} = 34$$

$$\boxed{n = 34}$$

So, The number of balls in First bucket = 34.

$$\begin{aligned} \text{Numbers of balls in Second bucket} &= n + 28 \\ &= 34 + 28 \end{aligned}$$

$$\boxed{= 62}$$

Q10: Salma invested Rs. 3,50,000 in a bank, which paid Simple Profit at the rate of $7\frac{1}{4}\%$ Per annum. After 2 years. The rate was increased To 8% Per annum. Find The amount She had at The end of 7 years.

Solution:

$$\text{Principal Amount} = P = \text{Rs. } 3,50,000$$

$$\text{Rate} = R_1 = 7\frac{1}{4}\%$$

$$\text{Rate} = R_2 = 8\%$$

$$= \frac{29}{4} \%$$

$$= 7.25 \%$$

$$\text{Time} = T_1 = 2 \text{ years}$$

$$I_1 = ?$$

$$I_1 = \frac{P R_1 T_1}{100}$$

$$I_1 = \frac{3,50,000 \times 7.25 \times 2}{100}$$

$$I_1 = \frac{5075000}{100}$$

$$I_1 = \text{Rs. } 50750$$

$$\text{Time} = T_2 = 5 \text{ years}$$

$$I_2 = ?$$

$$I_2 = \frac{P R_2 T_2}{100}$$

$$I_2 = \frac{3,50,000 \times 8 \times 5}{100}$$

$$I_2 = \frac{14000000}{100}$$

$$I_2 = 140000$$

Salma's amount = $3,50,000 + 50,750 + 1,40,000$
 after 7 year = Rs. 540,750.