

VIII Revision (Sample Paper)

- 1) Solve : $\frac{(x+1)(4x-3) - 4x^2 + 5}{4x+1} = \frac{1}{3}$
- 2) The sum of the digits of a 2 digit number is 8. The number obtained by interchanging the digits exceeds the given number by 18. find the given number.
- 3) The denominator of a rational number is greater than its numerator by 6. If the numerator is increased by 5 and the denominator is decreased by 3, the number obtained is equal to $\frac{5}{4}$. find the rational number.
- 4) find the difference between the C.I on ₹ 25,000 at 16% p.a for 6 months compounded half-yearly and compounded quarterly. Which option is better?
- 5) The S.I on a certain sum of money for 2 years at $4\frac{1}{2}\%$ p.a is ₹ 5400. What will be the C.I on that sum at the same rate for the same time period, if the interest is compounded annually.
- 6) The sum of three consecutive multiples of 8 is 888. find the multiples.
- 7) A steamer goes downstream from one point to another in 6 hours. It covers the same distance upstream in 7 hours. If the speed of the stream is 2 km/hr, find the speed of the steamer in still water.
- 8) Solve for y : $\frac{y^2 - (y+2)(y-2)}{y+2} = \frac{1}{2}$
- 9) A certain sum amounts to ₹ 12,167 in 3 years at 15% p.a compounded annually. find the sum.
- 10) In what time will a sum of ₹ 8750 at 20% p.a compounded annually amount to ₹ 6480?
- 11) Solve for x : $\frac{3x-3}{5} = \frac{6}{\frac{1}{3}x-1}$
- 12) When a number is multiplied by the smallest prime number, the product comes out to be -7. find the number.

13) Evaluate : $\sqrt{81} \div \sqrt{0.09}$

14) Find the value of $\sqrt{7396}$ and find $\sqrt{0.7396} + \sqrt{73.96}$

15) Evaluate : (a) $\frac{5}{6} + \left(-\frac{2}{3}\right) + \frac{1}{3} - \left(-\frac{2}{3} \div \frac{3}{2}\right)$

(b) $\frac{1}{2} \times \left(-\frac{5}{6}\right) - \left(-\frac{10}{6}\right) + \left(\frac{1}{2} \div \frac{15}{6}\right)$

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Revision (Sample Paper → answers)

$$1) \frac{4x^2 - 3x + 4x - 3 - 4x^2 + 5}{4x+1} = \frac{1}{3}$$

$$\Rightarrow \frac{x+2}{4x+1} = \frac{1}{3} \Rightarrow 3(x+2) = 4x+1$$

$$\Rightarrow 3x+6 = 4x+1$$

$$\Rightarrow 3x-4x = 1-6$$

$$\therefore -x = -5$$

$$x = 5 //$$

T	0
x	y

Let the digit in the ten's place be x
and that in the one's place be y

$$\text{original number} = 10x + y$$

$$\text{Reversed number} = 10y + x$$

$$\text{Then, } x+y=8 \Rightarrow x=8-y \rightarrow (1)$$

$$\text{Also } (10y+x) - (10x+y) = 18$$

$$\Rightarrow 10y+x-10x-y=18$$

$$\Rightarrow 9y-9x=18$$

$$\Rightarrow y-x=2$$

$$\Rightarrow y-(8-y)=2 \quad [\text{from eq: (1)}]$$

$$\Rightarrow y-8+y=2$$

$$\Rightarrow 2y=2+8=10$$

$$\therefore y = \frac{10}{2} = 5 ; x = 3$$

Hence, the two digit number is 35.

3) Let the fraction/rational number be $\frac{x}{y}$

$$\text{Then } y-x=6$$

$$\Rightarrow y=6+x \rightarrow (1)$$

$$\text{Also, } \frac{x+5}{y-3} = \frac{5}{4}$$

$$\Rightarrow 4(x+5) = 5(y-3) \Rightarrow 4x+20 = 5y-15$$

$$\Rightarrow 4x-5y = -15-20$$

$$\Rightarrow 4x-5(6+x) = -35$$

$$\Rightarrow 4x-30-5x = -35$$

$$\Rightarrow -x-30 = -35$$

$$\Rightarrow -x = -35+30 = -5$$

$$\therefore x = \underline{\underline{5}}$$

$$y = 6+5$$

$$= \underline{\underline{11}} \quad [\text{from eq: (1)}]$$

Hence, the required rational number

$$\text{is } \underline{\underline{\frac{5}{11}}}$$

4) For: half-yearly
 $P = ₹ 25,000$
 $R = 16\%$
 $n = 6 \text{ months} = \frac{6}{12} = \frac{1}{2} \text{ yr.}$

$$\text{Amount} = P \left(1 + \frac{R}{200}\right)^{2n}$$

$$= 25000 \left(1 + \frac{16}{200}\right)^{2 \times \frac{1}{2}}$$

$$= 25000 \times \frac{108}{100}$$

$$= ₹ 27000$$

$$C.I = A - P = 27000 - 25000 = 2000 \text{ Rs}$$

Hence, the required difference = $21040 - 2000$
 $= ₹ 40$

Thus ^{interest compounded} quarterly is the better option.

5) $n = 2 \text{ years}$
 $R = 4\frac{1}{2} = \frac{9}{2} \% \text{ p.a}$

$$S.I = ₹ 5400 = \frac{PRT}{100}$$

$$\Rightarrow 5400 = \frac{P \times 9 \times 2}{2 \times 100}$$

$$\Rightarrow P = \frac{5400 \times 200}{9 \times 2} = ₹ 60000$$

$$\text{Amount} = P \left(1 + \frac{R}{100}\right)^n = 60000 \left(1 + \frac{9}{200}\right)^2$$

$$= 60000 \times \frac{209}{200} \times \frac{209}{200}$$

$$= ₹ 65521.50$$

$$\therefore C.I = A - P = 65521.50 - 60,000$$

$$= ₹ 5521.50 //$$

6) Let the three consecutive multiples of 8 be $x, x+8$ and $x+16$.

For: quarterly

$$P = ₹ 25,000$$

$$R = 16\%$$

$$n = 6 \text{ months} = \frac{1}{2} \text{ yr}$$

$$\text{Amount} = P \left(1 + \frac{R}{400}\right)^{4n}$$

$$= 25000 \left(1 + \frac{16}{400}\right)^{4 \times \frac{1}{2}}$$

$$= 25000 \times \frac{104}{100} \times \frac{104}{100}$$

$$= ₹ 27,040$$

$$C.I = A - P = 27040 - 25000 = ₹ 2040$$

$$\begin{aligned} \text{Then, } x + x + 8 + x + 16 &= 888 \\ 3x + 24 &= 888 \\ 3x &= 888 - 24 = 864 \\ \therefore x &= \frac{864}{3} = 288 // \end{aligned}$$

Thus, the required multiples are 288, $288 + 8 = 296$
and $288 + 16 = 304$.

7)

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

Speed of the stream = 2 km/hr

Let the speed of steamer in still water be x km/hr

Then, upstream speed = $(x - 2)$ km/hr

downstream speed = $(x + 2)$ km/hr

Distance covered in upstream motion = distance covered in downstream motion

$$\therefore 7(x - 2) = 6(x + 2)$$

$$\Rightarrow 7x - 14 = 6x + 12$$

$$\Rightarrow 7x - 6x = 12 + 14$$

$$\Rightarrow x = 26$$

Hence, the speed of steamer in still water = 26 km/hr.

8)

$$\frac{y^2 - (y^2 - 2y + 2y - 4)}{y + 2} = \frac{1}{2}$$

$$\Rightarrow \frac{y^2 - y^2 + 4}{y + 2} = \frac{1}{2}$$

$$\Rightarrow 4 \times 2 = y + 2$$

$$\Rightarrow y + 2 = 8$$

$$\therefore y = 8 - 2 = \underline{\underline{6}}$$

9)

Amount = ₹ 12,167

$n = 3$ years

$R = 15\%$ p.a

$P = ?$

$$\text{Amount} = P \left(1 + \frac{R}{100}\right)^n$$

$$12167 = P \left(1 + \frac{15}{100}\right)^3$$

$$12167 = P \left(\frac{115}{100}\right)^3$$

$$\frac{12167 \times 100 \times 100 \times 100}{115 \times 115 \times 115} = P$$

$$\frac{12167 \times 100 \times 100 \times 100}{115 \times 115 \times 115}$$

$$\therefore \text{Sum} = 20 \times 20 \times 20 = \text{Rs } 8000 //$$

10) $P = ₹ 3750$
 $R = 20\% \text{ p.a}$
 $\text{Amount} = ₹ 6480$

$T = ?$
 $\text{Amount} = P \left(1 + \frac{R}{100}\right)^n$

$$6480 = 3750 \left(1 + \frac{20}{100}\right)^n$$

$$\frac{\overset{216}{\cancel{6480}}}{\underset{125}{\cancel{3750}}} = \left(\frac{6}{5}\right)^n$$

$$\left(\frac{6}{5}\right)^3 = \left(\frac{6}{5}\right)^n$$

\therefore Time period, $n = 3 \text{ years} //$

11) $5 \left(\frac{3}{5}x - 3\right) = 6 \left(\frac{1}{3}x - 1\right)$

$$3x - 15 = 2x - 6$$

$$3x - 2x = -6 + 15$$

$$x = 9 //$$

12) Let the number be x
 $\text{Smallest prime number} = 2$

Then, $2x = -7$

$$x = \underline{\underline{-\frac{7}{2}}}$$

Hence, the required number is $-\frac{7}{2}$

13) $\sqrt{0.09} = \sqrt{\frac{9}{100}} = \frac{3}{10} ; \sqrt{81} = 9$

$$\therefore \frac{\sqrt{81}}{\sqrt{0.09}} = \frac{9}{\frac{3}{10}} = \underline{\underline{30}}$$

14)

$$\sqrt{7396} = 86$$

$$\begin{array}{r}
 86 \\
 \hline
 8 \overline{) 7396} \\
 \underline{64} \\
 996 \\
 \underline{996} \\
 0
 \end{array}$$

$$\begin{array}{r}
 33 \\
 166 \\
 \hline
 996
 \end{array}$$

$$\therefore \sqrt{0.7396} = 0.86$$

$$\sqrt{73.96} = 8.6$$

$$\text{Thus, } \sqrt{0.7396} + \sqrt{73.96}$$

$$= 0.86 + 8.6 = \underline{\underline{9.46}}$$

15)

$$(a) \frac{5}{6} + \frac{-2}{3} + \frac{1}{3} - \left(\frac{-2}{3} \times \frac{2}{3} \right)$$

$$= \frac{5}{6} + \frac{-2}{3} + \frac{1}{3} + \frac{4}{9}$$

$$= \left(\frac{5}{6} + \frac{1}{3} \right) + \left(\frac{-2}{3} + \frac{4}{9} \right)$$

$$= \left(\frac{5+2}{6} \right) + \left(\frac{-6+4}{9} \right) = \frac{7 \times 3}{6 \times 3} - \frac{2 \times 2}{9 \times 2} = \frac{21-4}{18} = \underline{\underline{\frac{17}{18}}}$$

$$(b) \frac{1}{2} \times \frac{-5}{6} + \frac{10}{6} + \frac{1}{2} \times \frac{6}{5}$$

$$= \left(\frac{-5}{12} + \frac{10}{6} \right) + \frac{1}{5}$$

$$= \frac{-5+20}{12} + \frac{1}{5} = \frac{15}{12} + \frac{1}{5} = \frac{5 \times 5}{4 \times 5} + \frac{1 \times 4}{5 \times 4}$$

$$= \frac{25+4}{20} = \underline{\underline{\frac{29}{20}}}$$