

Question Bank

Type-I (To Find the Maturity Value)

1. Mrs. Desai deposits ₹ 4500 per month in a recurring deposit account for 3 years at the rate of 8% p.a. simple interest. Find the amount she will receive at the time of maturity.
2. Mr. Rajiv Anand has opened a recurring deposit account of ₹ 400 per month for 20 months in a bank. Find the amount of maturity if the rate of interest is 8.5% p.a. and if the interest is calculated at the end of each month.

Type-II (To Find the Rate of Interest)

3. Mrs. Sarita deposits ₹ 900 per month in a recurring account for 2 years. If she gets ₹ 1800 as interest at the time of maturity, find the rate of interest if the interest is calculated at the end of each month. Also find the maturity value.
4. Mr. Armit Singh has cumulative time deposit account in Punjab National Bank for 4 years at 7.5% p.a. simple interest. If he gets ₹ 44,280 at the time of maturity, find the monthly instalment. Also find the interest earned.

Type-III (To Find the Monthly Instalment)

5. Mr. R.K. Khanna has a recurring deposit account in a bank for 4 years at the rate of 10% p.a. He gets ₹ 6370 as the interest on maturity. Find: (i) the monthly instalment; (ii) the maturity amount.
6. Mr. V. Chako has a recurring deposit account in Bank of Baroda for $4\frac{1}{2}$ years at 11% (simple interest). If he gets ₹ 1,01,418.75 at the time of maturity, find the monthly instalment.

Type-IV (To Find the Time Period)

7. Mrs. Puri has a recurring deposit account in HDFC Bank of ₹ 2000 per month at the rate of 10% p.a. If she gets ₹ 83,100 at the time of maturity, find the total time in years for which the account was held.

Refer: Remark (iii).

$$\therefore \text{Time} = 36 \text{ months.}$$

$$9972 = 9972 \text{ verified}$$

Also

$$277 \times 36 = 2493 \times 4$$

and

$$600 \times 42 = 25200 \text{ which is greater than } ₹ 24930$$

Note:

$$\therefore 600 \times 36 = 21600 \text{ which is less than maturity value} = ₹ 24930$$

$$\text{Time period} = 36 \text{ months} = 3 \text{ years}$$

$$\therefore x = 36 \text{ months}$$

$$\Rightarrow x^2 - 36x + (241 + 36)x - 2493 \times 4 = 0 \Rightarrow x(x - 36) + 277(x - 36) = 0$$

$$\Rightarrow x^2 - 36x + (241 + 36)x - 2493 \times 4 = 0 \Rightarrow x(x - 36) + 277(x - 36) = 0$$

$$\Rightarrow 120x + \frac{x(x+1)}{2} = 2493 \times 2 \Rightarrow x^2 + 241x - 2493 \times 4 = 0$$

10. Mr. Jacob deposited ₹12,440 at the time of maturity in India for two years. Find the interest earned.

8. Mr. Rajeev Saxena pays simple interest which the account pays 8% p.a. Find the amount which the account pays simple interest.

9. Mrs. Geeta Bansal pays simple interest which the account pays 8% p.a. Find the amount which the account pays simple interest.

1. Mr. Gupta opened a bank account for two years. At the end of the period, the bank pays interest of ₹ 66,240. Find the rate of interest.

2. Ahmed has a recurring deposit account for 3 years at the rate of 8% p.a. simple interest. Find the amount she will receive at the time of maturity.

3. Kiran deposited ₹ 400 per month for 20 months in a bank. Find the amount of maturity if the rate of interest is 8.5% p.a. and if the interest is calculated at the end of each month.

4. Mr. Britto deposits ₹ 900 per month in a recurring account for 2 years. If she gets ₹ 1800 as interest at the time of maturity, find the rate of interest if the interest is calculated at the end of each month.

5. Shahrugh opened a cumulative time deposit account in Punjab National Bank for 4 years at 7.5% p.a. simple interest. If he gets ₹ 44,280 at the time of maturity, find the monthly instalment. Also find the interest earned.

6. Katrina opened a recurring deposit account in a bank for 4 years at the rate of 10% p.a. He gets ₹ 6370 as the interest on maturity. Find: (i) the monthly instalment; (ii) the maturity amount.

7. Mohan has a recurring deposit account in Bank of Baroda for $4\frac{1}{2}$ years at 11% (simple interest). If he gets ₹ 1,01,418.75 at the time of maturity, find the monthly instalment.

8. Mr. Richard has a recurring deposit account in HDFC Bank of ₹ 2000 per month at the rate of 10% p.a. If she gets ₹ 83,100 at the time of maturity, find the total time in years for which the account was held.

8. Mr. Rajeev Saxena has a recurring deposit account ₹ 600 per month in a bank, if the bank pays simple interest of 7% p.a. and he gets ₹ 15,450 as maturity amount, find the total time for which the account was held.
9. Mrs. Geeta Bansal has a cumulative time deposit account of ₹ 1200 per month in a bank which pays 8% p.a. Find the time (in months) of this cumulative time deposit account if she gets ₹ 12,440 at the time of maturity.

Miscellaneous

10. Mr. Jacob deposits ₹ 1500 per month in a cumulative time deposit account in State Bank of India for two years. If at the end of maturity he gets ₹ 37,875, find the rate of interest. Also find the interest earned. [ICSE Specimen paper]

Latest ICSE Questions

1. Mr. Gupta opened a recurring deposit account in a bank. He deposited ₹ 2500 per month for two years. At the time of maturity he got ₹ 67,500. Find:
(i) the total interest earned by Mr. Gupta, (ii) the rate of interest per annum. [ICSE 2010]
2. Ahmed has a recurring deposit account in a bank. He deposits ₹ 2500 per month for 2 years. If he gets ₹ 66,250 at the time of maturity, find:
(i) the interest paid by the bank, (ii) the rate of interest. [ICSE 2011]
3. Kiran deposited ₹ 200 per month for 36 months in a bank's recurring deposit account. If the bank pays interest at the rate of 11% per annum, find the amount she gets on maturity. [ICSE 2012]
4. Mr Britto deposits a certain sum of money each month in a recurring deposit account of a bank. If the rate of interest is 8% per annum and Mr. Britto gets ₹ 8088 from the bank after 3 years, find the value of his monthly instalment. [ICSE 2013]
5. Shahrukh opened a recurring deposit account in a bank and deposited ₹ 800 per month for $1\frac{1}{2}$ years. If he received ₹ 15,084 at the time of maturity, find the rate of interest per annum. [ICSE 2014]
6. Katrina opened a recurring deposit account with a Nationalised Bank for a period of 2 years. If the bank pays interest at the rate of 6% per annum and the monthly instalment is ₹ 1000, find the
(i) interest earned in 2 years, (ii) maturity value. [ICSE 2015]
7. Mohan has a recurring deposit account in a bank for 2 years at 6% p.a. simple interest. If he gets ₹ 1200 as interest at the time of maturity, find:
(i) the monthly instalment, (ii) the amount of maturity. [ICSE 2016]
8. Mr. Richard has a recurring deposit account in a bank for 3 years at 7.5% p.a. simple interest. If he gets ₹ 8325 as interest at the time of maturity, find:
(i) The monthly deposit
(ii) The maturity value. [ICSE 2017]

Solution: Given,

$$NV = ₹ 100$$

$$MV = ₹ x$$

Let,

Dividend @ 9%

$$\text{Income from 1 share} = ₹ \frac{100}{9} \times 100 = ₹ 9$$

$$\therefore \text{As per question, } \frac{9}{15} \times 100 = \frac{x}{15} \Rightarrow x = \frac{9 \times 200}{15} = 120$$

\therefore Market value of each share = ₹ 120.

Also given, annual dividend = ₹ 630.

$$\therefore \text{Number of shares} = \frac{630}{9} = 70$$

$$\therefore \text{Investment for 70 shares} = ₹ 70 \times 120 = ₹ 8400$$

(i) Market value of each share = ₹ 120

(ii) ₹ 8400 is invested to obtain an annual dividend = ₹ 630

Question Bank

Type-I (Based on Annual Dividend)

1. Amit Kumar invests ₹ 36000 in buying ₹ 100 shares at ₹ 20 premium. The dividend is 15% per annum. Find: (i) the number of shares he buys, (ii) the yearly dividend, (iii) the percentage return on his investment.

2. A lady holds 1800; ₹ 100 shares of a company that pays 15% dividend annually. Calculate her annual dividend. If she had bought these shares at 40% premium, what percentage return she would have got on her investment? Give your answer to the nearest integer.

3. A man invests a sum of money in ₹ 100 shares, paying 15% dividend quoted at 20% premium. If his annual dividend is ₹ 540, calculate

(i) his total investment, (ii) the rate of return on his investment.

Type-II (Based on Finding the Number of Shares)

4. A man buys shares at the par value of ₹ 10 yielding 8% dividend at the end of a year. Find the number of shares bought if he receives a dividend of ₹ 300.
5. A man invests ₹ 8800 on buying shares of face value of ₹ 100 each at a premium of 10%. If he earns ₹ 1200 at the end of year as dividend, find:
 - (i) the number of shares he has in the company, (ii) the dividend percentage per share.
6. A man invested ₹ 45000 in 15% ₹ 100 shares quoted at ₹ 125. When the market value of these shares rose to ₹ 140, he sold some shares just enough to raise ₹ 8400. Calculate:
 - (i) the number of shares he still holds, (ii) the dividend due to him on these shares.
7. A man sold some ₹ 100 shares paying 10% dividend at a discount of 25% and invested the proceeds in ₹ 100 shares paying 16% dividend quoted at ₹ 80 and thus increased his income by ₹ 2000. Find the number of shares sold by him.
8. Abhishek sold a certain number of shares of ₹ 20 paying 8% dividend at ₹ 18 and invested the proceeds in ₹ 10 shares, paying 12% dividend at 50% premium. If the change in his annual income is ₹ 120, find the number of shares sold by him.

Miscellaneous

18. A man invests ₹ 6750 in buying shares at a loss of 25%.
19. A person invested ₹ 20000 in buying shares of ₹ 100 each. If the total income is ₹ 2000, find the number of shares bought.
20. A person invested ₹ 20000 in buying shares of ₹ 100 each. If the total income is ₹ 2000, find the number of shares bought.

Type-VI (Based on

(iii) the percentage change in the price of shares.

(ii) the number of shares at ₹ 42. Find the

(i) the number of shares at ₹ 90.

16. Mrs. Chawla invests ₹ 20000 in buying shares at ₹ 8. Find the change in the price of shares.

15. A man invested ₹ 10000 in buying shares at ₹ 100. Find the percentage increase in the price of shares.

14. Mukul invests ₹ 9000 in buying shares at ₹ 100. Find the number of shares bought.

13. Mr. Sharma has 60 shares of ₹ 100 each. Find the market value of these shares at a premium of 60%.

12. A man invests ₹ 7425 in buying shares at ₹ 100. Find the number of shares bought.

11. By purchasing ₹ 5000 worth of shares at ₹ 100 each, a man gets a dividend of ₹ 200. Find the percentage return on his investment.

10. A company declared a dividend of ₹ 100 per share. If a man invests ₹ 7425 in buying shares at ₹ 100 each, find the number of shares bought.

9. By investing ₹ 7500 in buying shares at ₹ 100 each, a man gets a dividend of ₹ 200. Find the percentage return on his investment.

8. A man invests ₹ 20000 in buying shares at ₹ 100 each. Find the number of shares bought.

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1. A man invests ₹ 20000 in buying shares at ₹ 100 each. Find the number of shares bought.

Type-III (Based on Finding the Market Value)

9. By investing ₹ 7500 in a company paying 10% dividend, an income of ₹ 500 is received. What price is paid for each ₹ 100 share.
10. A company declared a dividend of 14%. Find the market value of ₹ 50 shares if the return on the investment was 10%.

Type-IV (Based on Finding Dividend Percentage)

11. By purchasing ₹ 50 gas shares for ₹ 80 each, a man gets 4% on his investment. What rate per cent is the company paying? What is his dividend if he buys 200 shares?
12. A man invests ₹ 7425 on buying shares of face value ₹ 90 each at a premium of 10% in a company. If he earns ₹ 1350 as dividend at the end of the year, find:
- the number of shares he has in the company.
 - the dividend percentage per share that he received.

Type-V (Based on Finding Sale Proceeds)

13. Mr. Sharma has 60 shares of nominal value ₹ 100 and he decides to sell them when they are at a premium of 60%. He invests the proceeds in shares of nominal value ₹ 50, quoted at 4% discount, paying 18% dividend annually. Calculate: (i) the sales proceeds.
(ii) the number of shares he buys. (iii) his annual dividend from these shares.
14. Mukul invests ₹ 9000 in a company paying dividend of 6% per annum when a share of face value ₹ 100 stands at ₹ 150. What is his annual income? He sells 50% of his shares when the price rises to ₹ 200. What is his gain on this transaction?
15. A man invested ₹ 10,080 in 6% hundred-rupee shares at ₹ 112. Find the annual income. When the shares fall to ₹ 96 he sells out the shares and invests the proceeds in 10% ten-rupee shares at ₹ 8. Find the change in his annual income.
16. Mrs. Chawla invested ₹ 19,200 in 15% ₹ 100 shares at 20% discount. After a year, she sold these shares at ₹ 90 each and invested the proceeds (including her dividend) in 20%, ₹ 50 shares at ₹ 42. Find: (i) the dividend for 1st year. (ii) her annual income in the 2nd year.
(iii) the percentage change in her return on her original investment.

Type-VI (Based on to Find, which is a better investment)

17. Two companies have shares of 7% ^{₹ 100 share} at ₹ 116 and 9% ^{₹ 100 share} at ₹ 145 respectively. In which of the shares would the investment be more profitable?

Miscellaneous

18. A man invests ₹ 6750, partly in shares of 6% ^{₹ 100 share} at ₹ 140 and partly in shares of 5% ^{₹ 100 share} at ₹ 125. If his total income is ₹ 280, how much has he invested each?
19. A person invested 20%, 30% and 25% of his savings in buying shares of three different companies A, B and C, which declares dividends of 10%, 12% and 15% respectively. If his total income on account of dividends be ₹ 2337.50, find his saving and the amount which he invested in buying shares of each company.
20. A person invested ₹ 8000 and ₹ 1,000 in buying shares of two companies which later on declared dividends of 12% and 8% respectively. He collects the dividends and sells out his shares at a loss of 2% and 3% respectively. Find his total earning from the above transaction.

Example 16: An integer is such that half of the next integer is at least 4 more than one third of the previous integer. Find the least value of the integer.

Solution: Let the positive integer be x .

As per question, $\frac{x+1}{2} \geq \frac{x-1}{3} + 4, x \in I^+$

$$\Rightarrow \frac{x+1}{2} - \frac{x-1}{3} \geq 4 \Rightarrow \frac{3x-2x+5}{6} \geq 4$$

$$\Rightarrow \frac{x+5}{6} \geq 4 \Rightarrow x \geq 24 - 5 \Rightarrow x \geq 19$$

$\therefore x \in I^+$

\therefore Solution set = $\{19, 20, 21, 22, \dots\}$

\therefore Least positive integer = 19

Question Bank

Type-I

1. List and graph the solution set of $30 - 4(2x - 1) < 30$, given that x is a positive integer.
2. List the solution set of $\frac{9-3x}{8} + \frac{3}{4} \leq \frac{11-2x}{5}, x \in N$.
3. Solve $\frac{2x+1}{2} + 2(3-x) \geq 7, x \in R$. Also graph the solution set on the number line.
4. Find the smallest value of x for which $5 - 2x < 5\frac{1}{2} - \frac{5x}{3}$, where x is an integer.
5. Solve the inequality: $5x - 2 \leq 3(3 - x)$ where $x \in \{x : -2 \leq x \leq 4, x \in Z\}$. Also represent its solution on the number line.

Type-II

6. Find the values of x , which satisfy the inequation: $-2 \leq \frac{1}{2} - \frac{2x}{3} \leq \frac{11}{6}; x \in N$. Graph the solution set on the real number line.
7. Find the values of x , which satisfy the inequation: $3 \geq \frac{x-4}{2} - \frac{x}{3} \geq 2, x \in I$. Graph the solution on the number line.
8. Find the range of values of x , which satisfies the inequality: $-\frac{1}{5} \leq \frac{3x}{10} + 1 < \frac{2}{5}; x \in R$. Graph the solution set on the number line.

Type-III

9. Given $x \in \{1, 2, 3, 4, 5, 6, 7, 9\}$, find the values of x for which $-3 < 2x - 1 < x + 4$.
10. Solve the inequation: $-2\frac{1}{2} + 2x \leq \frac{4x}{5} \leq \frac{4}{3} + 2x, x \in W$. Graph the solution set on the number line.
11. Given that $x \in R$, solve the inequation and graph the solution on the number line:
 $11 \geq 5x + 4 \geq 2x - 5$.

[ICSE]

Type-IV (Combining Inequalities)

12. Find the set of values of x , satisfying: $7x + 3 \geq 3x - 5$ and $\frac{4}{x} - 5 \leq \frac{4}{5} - x$, $x \in N$.

13. Given $A = \{x : 0 < x + 1 \leq 6, x \in R\}$ and $B = \{x : -2 < x + 2 \leq 5, x \in R\}$

Represent on different number lines: (i) $A \cap B$ (ii) $A' \cap B$ (iii) $A - B$

14. Graph these values of x on the number line.

Given $P = \{x : 5 < 2x - 1 \leq 11, x \in R\}$

$Q = \{x : -1 \leq 3 + 4x < 23, x \in I\}$

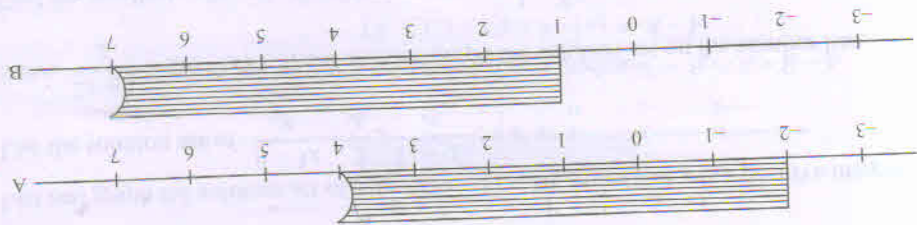
where $R =$ (real numbers), $I =$ (integers)

Represent P and Q on number lines. Write down the elements of $P \cap Q$.

15. The diagram represents two inequations A and B on real number lines.

(i) Write down A and B in set builder notation.

(ii) Represent $A \cap B$ and $A \cup B'$ on two different number lines.



Miscellaneous

16. Solve and represent the solution set on the number line:



17. Two third of a stick is in water, one-fourth of it is buried in mud and rest part of the stick is above the water which is less than 3 m. Find the length of the shortest stick.

18. Given that: $A = \{x : 3 < 2x - 1 < 9, x \in R\}$, $B = \{x : 11 \leq 3x + 2 \leq 23, x \in R\}$

(i) Represent A and B on number lines.

(ii) On the number line also mark $A \cap B$.

Latest ICSE Questions

1. Solve the following inequation and represent the solution set on the number line:

$$-3 < -\frac{1}{2} - \frac{3}{5} \leq \frac{6}{5}, x \in R.$$

2. Solve the following inequation and represent the solution set on the number line:

$$2x - 5 \leq 5x + 4 < 11, \text{ where } x \in I.$$

3. Solve the following inequation and represent the solution set on the number line:

$$4x - 19 < \frac{3x}{5} - 2 \leq -\frac{2}{5} + x, x \in R.$$

[ICSE 2010]

[ICSE 2011]

[ICSE 2012]