23. In the given figure, S is any point on QR. Prove that

\[ PQ + QR + RP > 2PS \]

\[ \begin{array}{c}
\text{P} \\
\text{Q} \quad \text{S} \quad \text{R}
\end{array} \]

24. In the given figure, find the value of \( x \).

\[ \begin{array}{c}
\text{A} \\
\text{B} \quad \text{C} \quad \text{D}
\end{array} \]

25. The volume of a cube is 1728 cubic cm. Find its total surface area.

26. Evaluate:

\[ \frac{\cos^2 32^\circ + \cos^2 58^\circ}{\sin^2 59^\circ + \sin^2 31^\circ} \]

27. Find the sum

\[ \frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \ldots + \frac{1}{156} \]

28. Prove that:

\[ \frac{1}{1 + x^{b-a}} + \frac{1}{1 + x^{a-b}} + \frac{1}{1 + x^{b-c}} + \frac{1}{1 + x^{c-a}} = 1 \]

29. A salesman sells articles at Rs 5 each. He sells 1600 articles in the first week. In the second week, he sells 15% more than in the first week and in the third week, he sells 10% more than in the second week.

Calculate the amount received by the salesman if he gets 12% of the price of each article on the first 1000 sold and 15% of the price of each article he sells in excess of 1000.
33. (i) Possible outcomes are
   HHH, HHT, HTH, THH, HTT
   THT, TTH, TTT  
   \[ \text{\therefore Total number of possible outcomes} = 8 \]

(ii) Favourable outcomes are
   HHH, HHT, HTH, THH

\[ \text{\therefore Number of favourable outcomes} = 4 \]

\[ \Rightarrow \text{Required probability} = \frac{4}{8} = \frac{1}{2} \]

34. 

\[ \begin{array}{c|c}
\text{Percentage} & \text{Economic} \\
\hline
32 & \\
\hline
28 & \\
\hline
10 & \\
\hline
20 & \\
\hline
\end{array} \]

1 mark for each correct bar \[ 1 \times 4 = 4 \]

For correct axis and making \[ 1 \]

OR

(For visually impaired learners only)

(i) 10% \[ 1 \]

(ii) \( (10 + 10 + 4 + 5)\% = 29\% \) \[ 3 \]

(iii) 4% \[ 1 \]

35. Given: Parallelograms ABCD and PBCQ stand on the same base BC and between the same parallels BC and AQ.

To prove: Area (ABCD) = Area (BCQP)