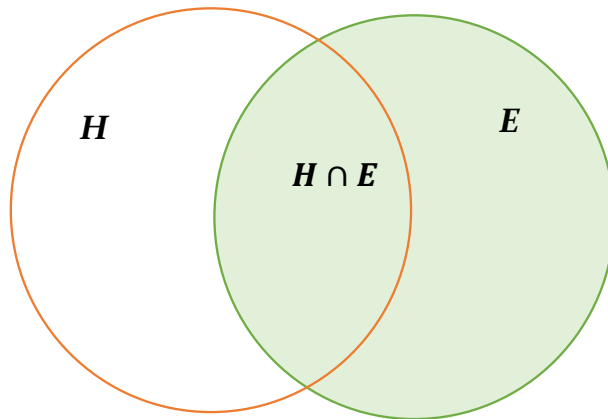


Answer to Question #39215 – Math – Other

Question: In a group of 50 people, 35 speak Hindi, 25 speak both English and Hindi and all people speak at least one of the two languages. How many people speak only English and not Hindi? How many people speak English?

Solution. We will use Venn diagrams to solve this problem.

Let us draw the set H of people who speak Hindi and the set E of people who speak English.



Denote by A the set of all people in the group and by $|A|$ the cardinality (number of elements) of this set. We are given that $|A| = 50$.

We also know that $|H| = 35$ and $|H \cap E| = 25$.

Now note that

$$|A| = |H| + |E| - |H \cap E|$$

(we subtract $|H \cap E|$ not to count it twice).

Substitute the known values into this equality:

$$50 = 35 + |E| - 25$$

and use it to find $|E|$:

$$|E| = 50 - 10 = 40.$$

Thus, the number of all people in the group who speak English is 40.

Now find the number of people who speak English and not Hindi:

$$|E \setminus H| = |E| - |H \cap E| = 40 - 25 = 15.$$

Answer. The number of people who speak only English and not Hindi is 15; the number of people who speak English is 40.