Problem 26

Out of the 35 students in my class, there are twice as many people who are proficient writing with their right hand than people who are proficient writing with their left. If half the people who are proficient writing with their left hand are also proficient writing with their right, how many students are proficient writing with their right hand?

Answer

$\boxed{28}$

Explanation

Let x be the students who are proficient writing with *only* their right hand; y be the students who are proficient writing with *both* hands; z be the students who are proficient writing *only* with their left hand.

We have:

$x + y = 2(y + z)$	Twice as many right-handed than left-handed
$y = \frac{1}{2}(y + z)$	Half left-handed are ambidextrous
$x + y + z = 35$	35 Students in my class.

$\Rightarrow$

$$\begin{cases} x - y - 2z = 0 \\ y - z = 0 \\ x + y + z = 35 \end{cases}$$

$\Rightarrow$

Since the 2nd line states that $y = z$, we have:

$$\begin{cases} x - 3y = 0 \\ x + 2y = 35 \end{cases}$$

$\Rightarrow$

Subtracting the 1st row from the 2nd row, we have:

$5y = 35 \Rightarrow y = 7 \Rightarrow z = 7 \Rightarrow x = 21$

Thus, the number of people who are proficient writing with their right hand is:

$x + y = 21 + 7 = 28$