

100 students participated in a test.

Mean score = 100

Number of boys taking the test was 50% more than the number of girls and the mean score of the girls was 50% higher than that of the boys. What was the mean score of the girls?

$$100 = B + G \quad (\# \text{ students})$$

$$100 = \frac{\text{Sum of all scores}}{100} \quad (\text{overall mean})$$

$$\Rightarrow \text{Sum of all scores} = 10000$$

$$B = 1.5G$$

$$\text{So } 100 = 1.5G + G$$

$$= 2.5G$$

$$\Rightarrow G = 40, \quad B = 60$$

$$\text{Mean}_G = 1.5 \text{ Mean}_B$$

$$\Rightarrow \frac{\text{Sum of girls' scores}}{40} = 1.5 \frac{\text{Sum of boys' scores}}{60}$$

$$\Rightarrow \left\{ \begin{array}{l} \text{Sum of} \\ \text{girls' scores} \end{array} \right\} = \frac{1.5 \times 40}{60} \left\{ \text{Sum of boys' scores} \right\}$$

$$= \left\{ \text{Sum of boys' scores} \right\}$$

$$\therefore \left\{ \begin{array}{l} \text{Sum of} \\ \text{girls' scores} \end{array} \right\} = \left\{ \begin{array}{l} \text{Sum of} \\ \text{boys' scores} \end{array} \right\} = \frac{10000}{2}$$

$$= 5000$$

$$\text{So Mean}_G = \frac{5000}{40} = 125$$