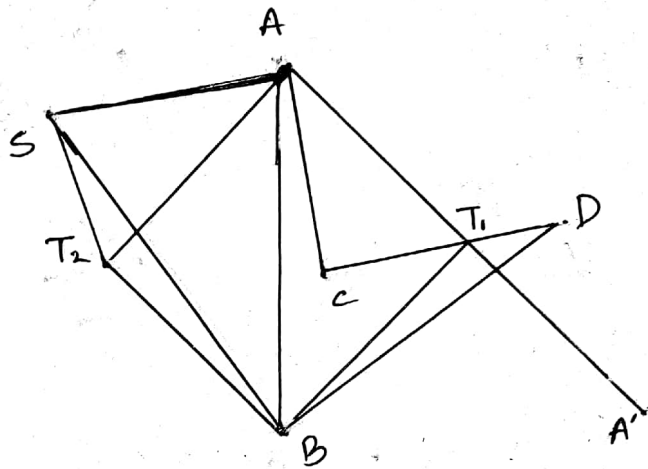


Out of the book - 4

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Section - A.

Wherever the stone is, the treasure's position does not depend on it.



A, B are trees, let  $S$  as position of stone, it is arbitrary. If we draw a square, taking AB as diagonal, its other 2 vertex are the possible position of treasure. The square is  $AT_1BT_2$ . Here,

$$\angle SAC = \angle T_2AT_1$$

$$\Rightarrow \angle SAT_2 = \angle CAT_1$$

Now,

$$SA = CA, T_2A = T_1A, \angle SAT_2 = \angle CAT_1$$

So,  $\triangle SAT_2 \cong \triangle CAT_1$

Hence,  $ST_2 = CT_1$  and  $\angle AT_2S = \angle AT_1C$

$\angle SBD$  is  $90^\circ$ , so is  $\angle T_2BT_1$

Hence,  $\angle T_1BD = \angle T_2BS$

Again,  $SB = DB, T_2B = T_1B, \angle SBT_2 = \angle DBT_1$

So,  $\triangle SBT_2 \cong \triangle DBT_1$

Hence,  $T_2S = T_1D$  and  $\angle ST_2B = \angle DT_1B$

So, we find,

$$\text{I.e. } \angle ST_1B = \angle ST_2A + \angle AT_2B$$

$$\Rightarrow \angle DT_1B = \angle AT_1C + 90^\circ$$

$$\therefore \angle DT_1A' = \angle AT_1C \quad \text{--- (1)}$$

But,

$$DT_1 = CT_1$$

So,  $T_1$  is the mid point of  $CD$  and

(1) denotes that  $D, T_1, C$  are collinear, as they are vertical.

So,

If  $S$  is on this side, treasure's position will  $T_1$ .

If on other side, it will be on  $T_2$ .

So, the boy needs to find the for the treasure. They are the only possible position.