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SECTION 22

$$PQ = (1, 0, 1) - (0, 1, 1) = \langle 1, -1, 0 \rangle$$

$$PR = (1, 1, 0) - (0, 1, 1) = \langle 1, 0, -1 \rangle$$

$$PQ \times PR = (1-0)i - (-1-0)j + (0-(-1))k$$

$$\begin{matrix} \hat{i} & \hat{j} & \hat{k} \\ 1 & -1 & 0 \\ 1 & 0 & -1 \end{matrix} = \hat{i} + \hat{j} + \hat{k}$$

$$= \langle 1, 1, 1 \rangle$$

(0, 1, 1) favorite point

$$(x-0)x + (y-1)x + (z-1)x = 0$$

$$\star x + y + z - 2 = 0$$

$$\boxed{\text{Ans: } x + y + z = 2}$$

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$$r(t) = \langle 1, 2t+1, 4t \rangle$$

$$x=1 \quad \begin{matrix} x+y+z=14 \\ y=2t+1 \\ z=4t \end{matrix}$$

$$1 + 2t + 1 + 4t = 14$$

$$6t = 12$$

$$t = 2$$

$$\text{Ans: } \langle 1, 5, 8 \rangle$$