Step-1

Point (x,y) is collinear with points $(2,8),(4,7)$ $(i.e$ lying on the line passing through $(2,8),(4,7))$ if and only if the area of the triangle formed by the vertices $(x,y),(2,8),(4,7)$ is zero.

Step-2

But the area of the triangle is

$$\frac{1}{2}\left|x_1(y_2-y_3)+x_2(y_3-y_1)+x_3(y_1-y_2)\right|$$

$$=\frac{1}{2}\left|x(8-7)+2(7-y)+4(y-8)\right|$$

$$=\frac{1}{2}\left|x+2y-18\right|$$

$$=\frac{1}{2}\begin{vmatrix} x & y & 1 \\ 2 & 8 & 1 \\ 4 & 7 & 1 \end{vmatrix}$$

Step-3

Hence (x,y) is collinear with $(2,8)\&(4,7)$

$$\Rightarrow\begin{vmatrix} x & y & 1 \\ 2 & 8 & 1 \\ 4 & 7 & 1 \end{vmatrix}=0$$ Or $x+2y-18=0$