9 (vi) $\frac{x}{a}+\frac{y}{b}=a+b \quad \cdots (i)$

$\frac{x}{a^2}+\frac{y}{b^2}=2 \quad \cdots (ii) \; a,b \neq 0$

$(i)\times\frac{1}{a} - (ii)\times 1$

$\frac{x}{a^2}+\frac{y}{ab}=\frac{a+b}{a}$

$\frac{x}{a^2}+\frac{y}{b^2}=2$

$y\left(\frac{1}{ab}-\frac{1}{b^2}\right)=\frac{a+b}{a}-2$

$\Rightarrow y\left(\frac{b-a}{ab^2}\right)=\frac{a+b-2a}{a}$

$\Rightarrow y=\frac{(b-a)}{a}\times\frac{ab^2}{(b-a)}$

$\Rightarrow y=b^2$

Sub (ii)

$\frac{x}{a^2}+\frac{b^2}{b^2}=2$

$\Rightarrow \frac{x}{a^2}=2-1$

$\Rightarrow \frac{x}{a^2}=1$

$\Rightarrow x=a^2$

$\therefore x=a^2, y=b^2$

9 (vii) $\frac{2xy}{x+y}=\frac{3}{2}$

$\Rightarrow 3x+3y=4xy \quad \cdots (i)$

$\frac{xy}{2x-y}=-\frac{3}{10}$

Put $x=0$ in both eqns gives $y=0$

$\therefore x=0, y=0$ is a sol.

if $x\neq 0, y\neq 0$

$\Rightarrow -6x+3y=10xy \quad \cdots (ii)$

$(i)-(ii)$

$3x+3y=4xy$

$-6x+3y=10xy$

$9x=-6xy$

$\Rightarrow y=-\frac{3}{2}$

Sub (i)

$3x+3\times\frac{-3}{2}=4\times x\times\frac{-3}{2}$

$\Rightarrow 3x-\frac{9}{2}=-6x$

$\Rightarrow 9x=\frac{9}{2}$

$\Rightarrow x=\frac{1}{2}$

$\therefore x=\frac{1}{2}, y=-\frac{3}{2}$