$$* \begin{cases} W: 17\% \ (1:3 \to 1:4) \\ H: 25\% \ (1:2) \end{cases} \quad \Rightarrow 51\% \to 68\% \Rightarrow \boxed{50\% \to 70\% \text{ for wives}}$$

$$\Rightarrow \boxed{50\% \text{ for husbands}}$$

$$P_{\substack{\text{Both}\\\text{cheating}}} = (.5)\cdot(.5 \to .7) = \boxed{.25 \to .35 = P_{\substack{\text{Both}\\\text{cheat}}}}$$

$$P_{\substack{\text{neither}\\\text{cheating}}} = (1-.5)\cdot(1-.7 \to 1.-.5) = (.5)\cdot(.3 \to .5) = \boxed{.15 \to .25 = P_{\substack{\text{neither}\\\text{cheat}}}}$$

$$P_{\substack{\text{W cheats}\\\text{H not}}} = (1-.5)\cdot(.5 \to .7) = (.5)\cdot(.5 \to .7) = \boxed{.25 \to .35 = P_{\text{W only cheats}}}$$

$$P_{\substack{\text{H cheats}\\\text{W not}}} = (.5)\cdot(1-.7 \to 1-.5) = (.5)\cdot(.3 \to .5) = \boxed{.15 \to .25 = P_{\text{H only cheats}}}$$

$$P_{\substack{\text{at least}\\\text{one cheats}}} = 1 - P_{\substack{\text{neither}\\\text{cheats}}} = 1 - (.35 \to .25) = \boxed{.75 \to .85 = P_{\substack{\text{at least}\\\text{one cheats}}}}$$

---

* For 10% pedigree error: $(.90)^x = .5$

$$\log\left[(.90)^x\right] = \log(.5)$$

$$x \log(.90) = \log(.5) \Rightarrow x = 6.58$$

$\boxed{\therefore \text{, by seven generations back, less than 50\% chance of genetic related. (10\%)}}$

* For 15% pedigree error: $(.85)^x = .5 \Rightarrow x = 4.265$

$\boxed{\therefore \text{, by 5 generations back, less than 50\% chance of genetic related. (15\%)}}$