

# Genetic Counseling

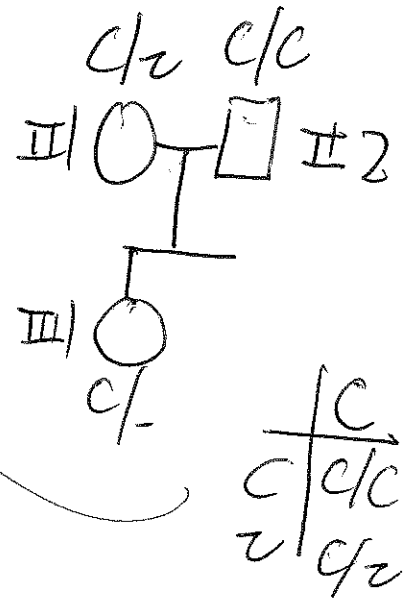
a)  $P(\overset{C/c}{III1} \times \overset{c/c}{III2} \rightarrow c/c) = ?$

$P(III1 \text{ is } C/c) = 1/2$

$P(III2 \text{ is } c/c) = 1$

$P(C/c \times c/c \rightarrow c/c) = 1/2$

	c
C	C/c
c	c/c



$P(III1 \text{ is } C/c \times III2 \text{ is } c/c \rightarrow c/c) = \frac{1}{2} \cdot 1 \cdot \frac{1}{2} = \frac{1}{4}$

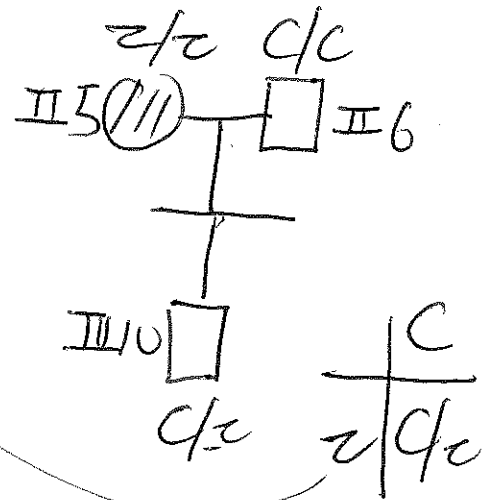
b)  $P(\overset{c}{\text{II}}4 \times \overset{c}{\text{III}}10 \rightarrow c/c) = ?$

$P(\text{II}4 \text{ is } c/c) = 1/2$

$P(\text{III}10 \text{ is } c/c) = 1$

$P(c/c \times c/c \rightarrow c/c) = 1/4$

	c	c
c	c/c	c/c
c	c/c	c/c



$P(\text{II}4 \text{ is } c/c \times \text{III}10 \text{ is } c/c \rightarrow c/c) = 1/8$

$1/2 \cdot 1 \cdot 1/4 = 1/8$

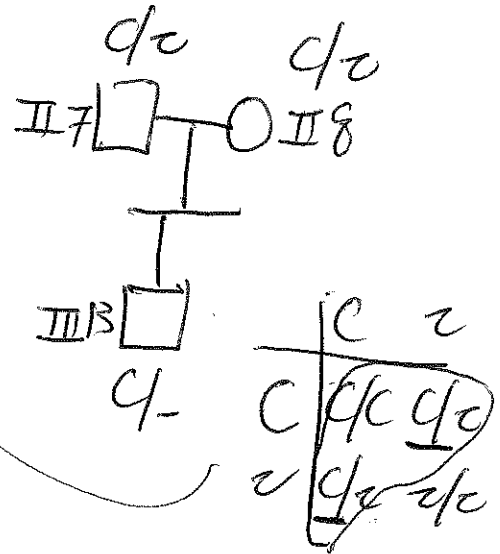
c)  $P(\text{III 6 is } \frac{d}{c} \times \text{III 13 is } \frac{d}{c}) \rightarrow \frac{d}{c} = ?$

$P(\text{III 6 is } \frac{d}{c}) = 1$

$P(\text{III 13 is } \frac{d}{c}) = \frac{2}{3}$  ←

$P(\frac{d}{c} \times \frac{d}{c} \rightarrow \frac{d}{c}) = \frac{1}{2}$

	c	c
c	$\frac{d}{c}$	$\frac{d}{c}$
c	$\frac{d}{c}$	$\frac{d}{c}$



$P(\text{III 6 is } \frac{d}{c} \times \text{III 13 is } \frac{d}{c} \rightarrow \frac{d}{c}) = \frac{1}{3}$

$1 \cdot \frac{2}{3} \cdot \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$

$$d) P(\overset{c/}{\text{III}7} \times \overset{c/}{\text{III}15} \rightarrow c/c) = ?$$

$$P(\text{III}7 \text{ is } c/c) = 2/3$$

$$P(\text{III}15 \text{ is } c/c) = 2/3$$

$$P(c/c \times c/c \rightarrow c/c) = 1/4$$

$$P(\text{III}7 \text{ is } c/c \times \text{III}15 \text{ is } c/c \rightarrow c/c) = \left( \frac{1}{9} \right)$$

$$\frac{2}{3} \cdot \frac{2}{3} \cdot \frac{1}{4} = \frac{4}{36} = \frac{1}{9}$$

$$e) P\left(\frac{C}{II2} \times \frac{C}{III5} \rightarrow C/C\right) = ?$$

$$P(\text{III2 is } C/C) = \cancel{2/3} \cdot 1/2$$

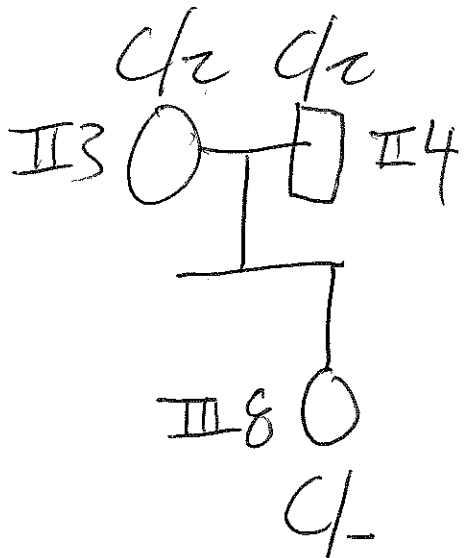
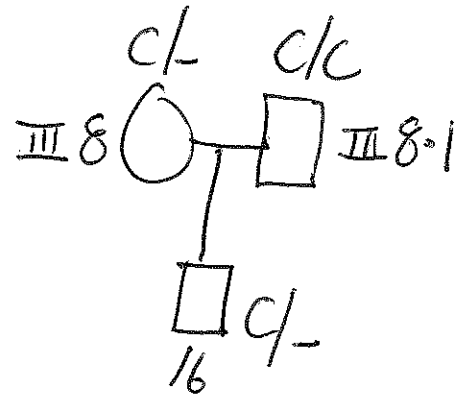
$$P(\text{III5 is } C/C) = 2/3$$

$$P(C/C \times C/C \rightarrow C/C) = 1/4$$

$$P(\text{III2 is } C/C \times \text{III5 is } C/C \rightarrow C/C) = \left(\frac{1}{2}\right)$$
$$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{1}{4} = \frac{2}{24} = \frac{1}{12}$$

f)  $P(\text{IV } 16 \times \text{IV } 17 \rightarrow c/c) = ?$

$P(\text{IV } 16 \text{ is } c/c) = 1/3$



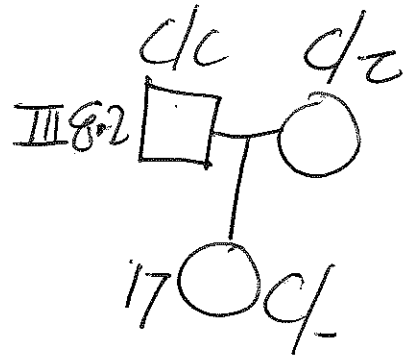
	c	c
c	c/c	c/c
c	c/c	c/c

$P(\text{III } 8 \text{ is } c/c) = 2/3$   
 $P(\text{III } 8.1 \text{ is } c/c) = 1$   
 $P(c/c \times c/c \rightarrow c/c) = 1/2$

$P(\text{III } 8 \text{ is } c/c \times \text{III } 8.1 \text{ is } c/c \rightarrow c/c) =$   
 $2/3 \cdot 1 \cdot 1/2 = 2/6 = (1/3)$

D.<sup>2</sup> Continue

$$P(\text{IV } 17 \text{ is } c/c) = 1/2$$



	c	c
c	c/c	c/c

$$P(\text{III } 8 \text{ is } c/c) = 1$$

$$P(\text{III } 9 \text{ is } c/c) = 1$$

$$P(c/c \times c/c \rightarrow c/c) = 1/2$$

$$P(\text{III } 8 \text{ is } c/c \times \text{III } 9 \text{ is } c/c \rightarrow c/c)$$

$$= 1 \cdot 1 \cdot 1/2$$
$$= \left( \frac{1}{2} \right)$$

