

Extra Hardy-Weinberg questions – answers

Diabetes question:

$$1/200 = dd = q^2 = 0.005$$

$$q = \text{SQRT of } 0.005 = 0.07$$

$$p = 1 - 0.07 = 0.93$$

$$2pq = 0.93 \times 0.07 \times 2 = 0.13$$

Phenylketonurea question:

$$1/10000 = pp = q^2 = 0.0001$$

$$q = \text{SQRT of } 0.0001 = 0.01$$

$$p = 1 - 0.01 = 0.99$$

$$2pq = 0.01 \times 0.99 \times 2 = 0.02$$

Amaurotic family idiocy question:

$$1/40000 = aa = q^2 = 0.000025$$

$$q = \text{SQRT of } 0.000025 = 0.005$$

$$p = 1 - 0.005 = 0.995$$

$$2pq = 0.005 \times 0.995 \times 2 = 0.00995$$