Biology 4605 / 7220 Name Key
Quiz #2b 16 September 2002

1. Theodosius Dobzhansky (1948) reported H, the genetic heterozygosity in the fruit fly *Drosophila persimilis*.

Alt	H	H1	H2	H3	H4
850	0.59				
3000	0.37	0.37/0.59			
4600	0.41				
6200	0.40		0.40/0.18		0.348
8000	0.31			-0.118	
8600	0.18				
10000	0.20				

Compute H normalized to its maximum value (H1), and to its minimum value (H2). Then compute H3 the deviation normalized to the mean. Compute H4 the deviation normalized to the standard deviation.

$$H1 = \frac{H}{\max(H)}$$

std(H) = 0.139694

$$H2 = \frac{H}{\min(H)}$$

$$H3 = \frac{H - mean(H)}{mean(H)}$$

mean(H) = 2.46/7 = 0.35143

$$H4 = \frac{H - mean(H)}{std(H)}$$

2. Convert 100 kilometres travelled in 24 hours to speed in metre/second.

$$\frac{100km}{24hr} \cdot \frac{1000m}{km} \cdot \frac{1hr}{60min} \cdot \frac{1min}{60sec} = 1.1574$$

rounded to 1.16

3. Complete the following computations.

$(10\ km)^{1.4}$ = 25.12 $km^{1.4}$

R = (100 km)/(1 km) $\log_{10}(R)$ = 2