

$$2^3 = 8 (< 30)$$

$$2^4 = 16 (< 30)$$

$$2^5 = 32 (> 30)$$

Thus, we may choose $k = 5$ as the number of classes.

(ii) According to Sturge's rule, the number of classes can be determined by the formula

$$k = 1 + 3.222 \log_e N$$

where k is the number of classes and $\log_e N$ is the logarithm of the total number of observations.

Applying this rule to the data given in Table 2.3, we get

$$k = 1 + 3.222 \log 30 = 1 + 3.222 (1.4771) = 5.759 \cong 5$$