You are interested in determining whether the variability you observe in speed of nest building in sparrows is due to genetic or environmental factors. You go out into the field and measure nest building speeds in a sparrow population of 21 birds. These are your results: Show your work!

    1 animal builds its nest in 10 min.
    5 animals build nests in 13 min.
    4 animals build nests in 14 min.
    3 animals build nests in 15 min.
    3 animals build nests in 11 min.
    4 animals build nests in 12 min.
    1 animal builds its nest in 16 min.

(a) Draw a graph of the distribution of nest building speeds and indicate the mean $(\bar{X}_p)$.

(b) You decide to allow only animals in the above population who build nests in 12 minutes or less to breed and produce the next generation. Indicate (on your graph) the breeding population and draw in the mean of this breeding population $(\bar{X}_b)$.

(c) The population of animals produced by the breeders has the following composition.

    2 animals build nests in 10 min.
    3 animals build nests in 11 min.
    4 animals build nests in 12 min.
    3 animals build nests in 13 min.
    2 animals build nests in 14 min.

Draw a graph of the distribution of nest building speeds in this filial generation and indicate the mean $(\bar{X}_f)$.

(d) Calculate the h^2 of nest building speeds.

(e) What is the significance of the h^2 you calculated?