NOTATION

\( n \), the number of vertices  
\( e \), the number of edges  
\( \delta \), the minimum degree  
\( \Delta \), the maximum degree  
\( \bar{d} \), the average degree  
\( n_\delta \), the number of vertices of minimum degree  
\( n_\Delta \), the number of vertices of maximum degree  
\( n_e \), the number of vertices of even degree  
\( n_o \), the number of vertices of odd degree

\( S_n \), the \textit{star} with \( n \) vertices  
\( K_n \), the \textit{complete graph} with \( n \) vertices  
\( P_n \), the \textit{path} with \( n \) vertices  
\( C_n \), the \textit{cycle} with \( n \) vertices  
\( E_n \), the \textit{empty graph} with \( n \) vertices

1. Draw \( P_n \) for \( n = 3, 4, 5 \).

(a) Find \( e \) for each of these graphs. Try to find a formula for \( e(P_n) \).

(b) Find \( \delta \) for each of these graphs. Try to find a formula for \( \delta(P_n) \).

(c) Find \( \Delta \) for each of these graphs. Try to find a formula for \( \Delta(P_n) \).

(d) Find \( \bar{d} \) for each of these graphs. Try to find a formula for \( \bar{d}(P_n) \).

(e) Find \( n_\delta \) for each of these graphs. Try to find a formula for \( n_\delta(P_n) \).
(f) Find $n_{\Delta}$ for each of these graphs. Try to find a formula for $n_{\Delta}(P_n)$.

(g) Find $n_e$ for each of these graphs. Try to find a formula for $n_e(P_n)$.

(h) Find $n_o$ for each of these graphs. Try to find a formula for $n_o(P_n)$.

2. Draw $C_n$ for $n = 3, 4, 5$.

(a) Find $e$ for each of these graphs. Try to find a formula for $e(C_n)$.

(b) Find $\delta$ for each of these graphs. Try to find a formula for $\delta(C_n)$.

(c) Find $\Delta$ for each of these graphs. Try to find a formula for $\Delta(C_n)$.

(d) Find $\bar{d}$ for each of these graphs. Try to find a formula for $\bar{d}(C_n)$.

(e) Find $n_\delta$ for each of these graphs. Try to find a formula for $n_\delta(C_n)$.

(f) Find $n_{\Delta}$ for each of these graphs. Try to find a formula for $n_{\Delta}(C_n)$.

(g) Find $n_e$ for each of these graphs. Try to find a formula for $n_e(C_n)$.

(h) Find $n_o$ for each of these graphs. Try to find a formula for $n_o(C_n)$. 