

Real Quiz 2

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1.

(i) (2 points) Show that there are exactly $2^{\binom{n-1}{2}}$ labeled simple graphs on n vertices.

As a complete simple graph with n vertices has $\frac{n(n-1)}{2}$ number of possible edges. The total edge set for K_n has size $\frac{n(n-1)}{2}$. $|E(K_n)| = \frac{n(n-1)}{2}$

(ii) (2 points) How many of these have exactly m edges?

$\binom{\frac{n(n-1)}{2}}{m}$

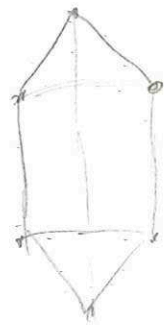
Then any simple graph choose m is just the same vertex set with edge set $E' \subseteq E$. There are exactly $2^{\binom{n-1}{2}}$ subsets of E . Powerset.

2. (4 points) Draw at least four (unlabeled) simple cubic graphs with 8 vertices.

4:



6:



8:

