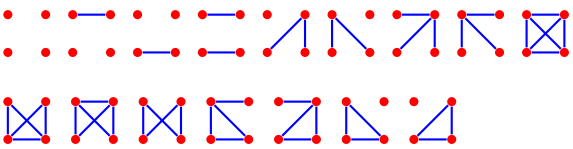
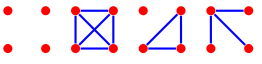
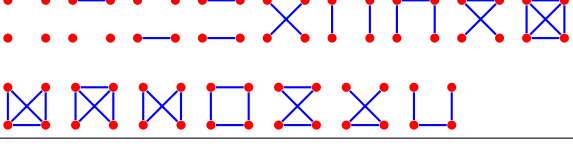


The Action of S_4 on the set $\mathcal{G}_4$ of Graphs with 4 Vertices

Philip Pennance¹ – February 2018.

Action of S_4 on $\mathcal{G}_4$		
$g \in S_4$	X_g (fixed by $g \in S_4$)	$ X_g $
	$\mathcal{G}_4$	64
$6 \times$ 		96
$8 \times$ 		32
$3 \times$ 		48
$6 \times$ 		24
$\sum X_g = 4! = 24$		$\sum X_g = 264$

The number of isomorphism classes: $r = \frac{\sum X_g}{|G|}$.

Class representatives: $\left\{ \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} , \begin{array}{c} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{array} \right\}$

¹<http://pennance.us>